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PREFACE TO THE SECOND EDITION.*

SINCE the delivery of the following address, more than four years ago, I have made several journeys in Sonora and Arizona, and have resided about a year at my place, the "Mowry Silver Mines," in Arizona.

In reading over the proof-sheets of this new edition, I find nothing to alter or correct in essential fact. The telegraph has just brought the intelligence of the Territorial organization of Arizona by the U. S. Congress, and the appointment of the governor, judges, and other officials. It is somewhat gratifying to me to know that gentlemen who, four years since, denied the necessity of this measure, and opposed it by vote and influence most virulently on political grounds, have seen the error of their ways. By reproducing my arguments and authorities, and even my words *verbatim et literatim*, they have paid a tribute to truth the more valuable that it comes from an unexpected source. As I had then and have now an ambition for Arizona far beyond private or personal views, I thank these gentlemen heartily, and make them welcome to "all the thunder" and all the political honors they have stolen from me.

The limits of an evening address necessarily precluded details, and obliged me to confine myself to general and prominent characteristics. The Appendix to this edition supplies this deficiency, and will, I trust, be found sufficiently full to make the work valuable for permanent use and future reference.

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* Published in 1863 by Roman and Company, San Francisco.

I claim for the following pages but one merit—accuracy of statement and an entire absence of exaggeration. No pains have been spared in verifying, from every valuable source, the facts presented, and I challenge the closest criticism on this point. The route laid down for the railroad from El Paso to Guaymas is only intended to indicate the general direction. It is made to run through the Gaudalupe Pass, because we know from actual survey that this Pass is practicable. I am informed, however, that a more southerly pass through the Sierra Madre exists, which would much shorten the distance from El Paso to Arizpe. General C. P. Stone informed me three years since that he was convinced of the existence of this pass.

The great opportunities now existing for permanent and richly paying investments in Sonora and Arizona can not be too highly estimated. Every facility is offered by the government for the development of the mines by foreign capitalists. The old prejudice against Americans is fast disappearing under the influence of contact and mutual interest. The owners of valuable mines are ready and willing to associate themselves with respectable Americans on liberal terms. The character of the men at this moment engaging in mining in Sonora and Arizona is a sure guarantee of honest and efficient management—a certain assurance of large returns.

In answer to many questions respecting the present governor of Sonora—Señor Don Ygnacio Pesqueira—I am glad to have the opportunity of saying that during several years of intercourse with him, more or less intimate, I have found him honorable, liberal, and especially desirous of forwarding, in every legitimate manner, the wishes and views of Americans whose enterprise had led them to Sonora. He said recently, in conversation with several gentlemen, "I care nothing for the political views of Americans who come here in good faith to assist us in developing the mineral wealth of the state. They shall have from me all the assistance that my own influence and the government can afford." I am sure I am doing only an act of justice in acknowledging many kindnesses from this gentleman, whom I am proud to call my friend.

Being neither "a prophet, nor the son of a prophet," I have carefully avoided political speculations in reference to Sonora. Thick-coming and unforeseen events would be almost certain to "write down an ass" the man who is bold enough to predict nowadays. One thing, however, is sure—Sonora has taken a step in an advancing career which will not be impeded. Capital and intelligence have again gained a footing in this beautiful and wealthy state, and her course will be rapid to prosperity and power.

The organization of Arizona, with the establishment of courts, and the presence of a large military force, will restore order, guarantee capital and labor, and subdue or exterminate the hostile Apaches.

I beg to make my sincere acknowledgments to the gentlemen who have favored me with notes, and especially to Don Juan A. Robinson, of Sonora, and Mr. J. A. Peck, of San Francisco, for valuable manuscript notes of mining localities in Sonora, which I have not visited.

S. M.

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UNIV. OF MICH.

T.W.

HACIENDA OF THE MOWRY SILVER MINES

ARIZONA AND SONORA:

73/89

THE

GEOGRAPHY, HISTORY, AND RESOURCES

OF THE

SILVER REGION OF NORTH AMERICA.

BY

SYLVESTER MOWRY,

OF ARIZONA,

GRADUATE OF THE U. S. MILITARY ACADEMY AT WEST POINT, LATE
LIEUTENANT THIRD ARTILLERY, U. S. A., CORRESPONDING
MEMBER OF THE AMERICAN INSTITUTE, LATE
U. S. BOUNDARY COMMISSIONER,
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of New York.

TO THOSE LIVING,

AND THE

Memory of those Dead,

KILLED BY THE APACHE INDIANS IN THE STRUGGLE TO REDEEM
ARIZONA FROM BARBARISM, WHO HAVE BEEN FOR
YEARS MY FAST FRIENDS THROUGH
GOOD AND EVIL REPORT,

These Pages are Affectionately Dedicated.

try. The mission of San Xavier del Bac, and the old towns of Tucson and Tubac, are the most prominent of these remains.

From 1757 down to 1820, the Spaniards and Mexicans continued to work many valuable mines near Barbacora, and the notes in my possession speak of many silver mines, most of which contained a percentage of gold. "The San Pedro gold mine in 1748 was worked with extraordinary success." Among the mines anciently worked, as laid down in the authorities heretofore referred to, were the Dolores, San Antonio, Casa Gordo, Cabrisa, San Juan Bautista, Santa Anna (which was worked to the depth of one hundred and twenty yards), Rosario, Cata de Agua, Guadaloupe, Connilla, Prieta, Santa Catarina, Gusopa, Hurstano, Arpa, Descubidara, Nascosare, Arguage, Churnabibi, Huscal, Pinal, and a great number of others, which it would only be tedious to mention.

Every exploration within the past few years has confirmed the statements of the ancient records. The testimony of living Mexicans and the tradition of the country all tend to the same end. Colonel A. B. Grey, Colonel Emory, Lieutenant Michler, Lieutenant Parke, the Hon. John R. Bartlett, late of the United States Boundary Commission, all agree in the statement that the Territory has immense resources in silver and copper. Colonel Emory says in his report:

"On account of the gold mania in California, I kept the search for gold and other precious metals as much out of view as possible, scarcely allowing it to be a matter of conversation, much less of actual search. Yet enough was ascertained to convince us that the whole region was teeming with the precious metals. We every where saw the remains of mining operations, conducted by the Spaniards, and more recently by the Mexicans."

The report enumerates at considerable length the various localities examined by Colonel Emory's party and others, of which there could be no doubt. The Hon. John R. Bartlett says of the Salinas, one of the northern branches of the Gila, that it alone will supply food for a great state. It must be recollected in this connection that the great mineral wealth of Arizona will call for, and amply repay for, the redemption and expensive cultivation of all the available lands, and that irrigation produces immensely greater crops than the other method of planting. Throughout the whole of Utah irrigation has been resorted to with the greatest success. The soil in Utah, in no place that the writer saw it, could in any way be compared to that of the bottom lands of Arizona. Captain Whipple, in his valuable report of exploration for the Pacific Railroad, published by order of Congress, crossed the upper part of the region alluded to, and which is watered by the Rio Verde and Salinas. He fully sustains me in my remarks on those rich valleys:

"We are in the pleasantest region we have seen since we left the Choctaw country. Here are clear rivulets, with fertile valleys and forest trees. The wide belt of country that borders the Black Forest, and probably extends along the Rio Verde to the Salinas and Gila, bears every indication of being able to support a large agricultural and pastoral population. The valley of the Rio Verde is magnificently wooded with firs and oaks, affording excellent timber. Ancient ruins are said by trappers to be scattered over its whole length to the confluence with the Salinas. We therefore seem to have skirted the boundary of a country once populous, and worthy of becoming so again. Besides the advantages already enumerated, the mountains in this vicinity bear indications of mineral wealth."—Vol. iii., p. 93.

The notes above referred to, in the possession of the writer, speak of great farming and grazing establishments scattered over the whole face of the Territory, between 1610 and 1800, which produced abundant crops of cereals, fruits, and grapes. These statements are confirmed by the testimony of Major Emory and his report, where he enumerates several of the most extensive; by Grey, Bartlett, Parke, and Colonel Bonneville. Many of the ranches, deserted by the Mexicans on account of the Apache Indians, have upon them large, well-built adobe houses, which must have cost the builders thousands of dollars. Many of these have been occupied under squatter titles by emigrants within the last few years. Of others only the ruins remain, having been destroyed by the depredations of the Indians, or by the heavy rains of succeeding years.

The country east of the Rio Grande is a great plain, broken only by the Sacramento and Guadalupe Mountains. Except in the towns on the river there is no population. The Mescalero Apaches have until lately made settlements unsafe. The establishment of Fort Stanton, and the activity of the United States troops, have, however, reduced this once formidable tribe in number and spirit, so that an early settlement of the fine country in the vicinity of the Sacramento Mountains may be expected. I have not visited this portion of the Territory, but from persons in whom I have perfect confidence I learn that there is a large and valuable district, offering great inducements to stock-raisers; a number of bold, clear streams, alive with trout and other fish; a good proportion of arable land, and an inexhaustible supply of oak, pine, hackberry, and other timber. In the Organ Mountains, opposite the Mesilla valley, there are silver mines of great value. One of these, the old Stevenson Mine, now known as the Fort Fillmore Mine, has been purchased by New York capitalists, and preparations are making to develop its undoubted wealth.

The Rio Grande valley, including the well-known Mesilla, contains a large extent of unoccupied arable land, with plenty of water for irrigation. Until lately, the protection afforded by United States troops has enabled the people to cultivate in safety, and during the last year nearly one hundred thousand bushels of grain were raised in the valley, besides a large number of cattle and horses. It is worthy of remark, that the settlements here, although mostly Mexican, have been made since the United States acquired the Territory, and that the lands are held under American title. The population is quiet, well behaved, and thoroughly American in feeling. It is estimated, and I believe correctly, that at least 50,000 people can be settled on the Rio Grande within the Arizona boundaries, and there are many attractions for the farmer and stock-raiser. West of the Rio Grande the country is a succession of *mesas* or table-lands, ascending gently for nearly ninety miles to the Sierra Madre, and thence westward for five hundred miles, gradually descending until they reach the Gulf of California. This extensive plateau south of the Gila is broken by two well-defined ranges of mountains, the Chir-aca-hui and Santa Rita, and by a number of isolated peaks, which assume something the form of a sugar-loaf, and are called by the Mexicans *Picachos* and *Peloncillos*.

The sun never shone on a finer grazing country than upon the three hundred miles west of the Rio Grande. The traveler has before him throughout the entire distance a sea of grass, whose nutritious qualities have no equal, and the stock-raiser in January sees his cattle in better condition than our Eastern farmer his stall-fed ox. Ninety miles west of the Rio Grande is the Mimbres River and valley. Passing over the dividing ridge of the Sierra Madre, with so gentle an ascent and descent as to make it almost imperceptible, you descend into a wide and beautiful valley, which at no distant day will support a large population. The banks of the river are covered with a fine growth of cottonwood, and above the usual crossing for emigrants wild grapes and berries are found in great profusion. The Santa Rita del Cobre copper mine, of ancient fame, and a little to the northwest of the Mimbres, has lately been reopened by a capitalist, who has already begun to reap the reward of his enterprise. One hundred and thirty thousand pounds of this copper were sold a few months since to the Chihuahua mint for thirty-five cents per pound. A quantity has been sent to London and to New York to be experimented on.* It is claimed that the superior malleability and ductility of this copper must make the demand for it very great. The Mimbres River sinks before reaching the line of Mexico. Some statements, which I have never been able to authenticate, make it flow in very rainy seasons into Lake Guzman. The Suanco, or Valle de Sanz, is the next valley on the line of the emigrant road. The waters of this stream are very limited and intermittent. As it approaches the Gila the valley becomes better, but it will never be available for extensive agriculture. The San Pedro River and valley, two hundred and fifty miles west of the Rio Grande, is par excellence the agricultural district south of the Gila. The valley is wide, very rich soil, and is considerably over one hundred miles in length. Owing to the depredations of the Apaches, no settlements have yet been made in this valley. There is, near the junction of the San Pedro with the Gila, and at the mouth of the Arivypa, a most beautiful and fertile region. A fine growth of ash covers the valley. The Santa Rita Mountains, which separate the San Pedro and Santa Cruz, contain inexhaustible supplies of pine and oak, besides untold millions of the precious metals. A military post of four

* See Appendix for later results.

companies at the mouth of the Arivypa would open this entire country to settlement.

Still following the emigrant and mail road fifty miles, brings us to the old Mexican town of Tucson and the valley of the Santa Cruz. Like most of the streams, the Santa Cruz is intermittent, sinking and rising at irregular intervals. A portion of this valley is covered with a heavy growth of cottonwood. The mountains in the vicinity contain pine and oak, and the extensive tracts of grazing lands south to the Mexican line are covered thickly with the mesquit—the best fuel in the world. The town of Tucson now contains about a thousand inhabitants. It once had three thousand; but the Indians, who desolated the whole of the Territory, had driven away all but about two hundred at the time of the Gadsden Purchase. Nine miles from Tucson, as you go up the valley of the Santa Cruz, is the old mission church of San Xavier, to which I have alluded elsewhere. It is still surroun[illegible] by a Papago Indian village; a few tame Apaches and [illegible]ew whites also live under the shadow of its towers. Incredible as the statement may seem, the church of San Xavier, with its elaborate façade, its dome and spires, would to-day be an ornament to the architecture of this great metropolis. No better evidence is needed of the resources and former prosperity of Arizona than is to be found in the now deserted missions of San Xavier and Tumacacori.

The town of Tubac, fifty miles southeast of Tucson, which now boasts a population of several hundred, was entirely deserted up to 1855, when it was reoccupied in part by the Sonora Exploring and Mining Company. They claim the town, and have given permission to a number of emigrants to occupy the old houses and build new ones. Over what was once the towers of the barracks of the Mexican troops now floats a banner bearing the arms of peace, a hammer and pick, the insignia of the company; and in the rooms beneath, which once echoed to the tread of the successful Apache fighter, are now sold the calicoes and cotton goods of Lowell, and all manner of Yankee notions. The great Heintzelman Mine, the mines of Arivaca, Sopori, and Santa Rita, are within a circle of twenty miles from Tubac. Three miles from Tubac is the mission of Tumacacori. Its venerable walls now shelter political exiles from Sonora and a few enterprising Germans, and its rich lands are cultivated by the American squatter. Twelve miles farther up the Santa Cruz is the ranch of Calabazas, claimed as the property of the Gandara family, of Sonora. The extensive buildings are occupied by American families, and the blacksmith's forge is installed in a room once dedicated to more delicate uses.

The Sonoita valley, which opens into the Santa Cruz near Calabazas, is the only one in any degree protected by the United States troops. It is about fifty miles long, in no place exceeding a mile in width, and generally much narrower. When I passed up it to Fort Buchanan, the whole valley was golden with grain. In one field there were one hundred and fifty acres of corn. I counted upon four stalks eighteen full-grown ears, and the average height of the stalks was fifteen feet. When it is borne in mind that this land was but just turned, the corn planted and neither hoed nor suckered, I am sure it will be conceded that there is some agricultural land of value in Arizona. On several of the farms two crops were raised last year, wheat and corn, wheat and beans, and other vegetables. The farmer during the past year found a ready market for his produce, his purchasers being the troops and the Overland Mail Company. This valley is almost entirely taken up by an intelligent and adventurous American population; and here is almost the only place in Arizona where you find that greatest of all blessings on the frontier—American women.

The Santa Cruz and San Pedro approach each other near the Mexican line; and by way of Santa Cruz—a Mexican town at the head of the valley in Sonora—you can pass from one to the other with ease. The whole region between the Rio Grande and the Santa Cruz is broken with conical-shaped hills and mountains, called by the Mexicans *peloncillos.* At the foot of these hills are found springs, which afforded water to the immense herds of cattle and horses which once covered the country; and at many of these springs are found the ruins of buildings occupied by the herders. The hills are covered to the top with the gramma, and other nutritious grasses.

Twenty miles east of the Sonoita valley, and just north of the town of Santa Cruz, is one of the richest silver regions of Arizona. The Wachupe Mountain is believed to be inexhaustible in silver. The San Antonio and Patagonia* mines, lately opened, promise a rich yield to their owners. One of these is of especial value, yielding, besides a large percentage of silver, 53 per cent. of lead, which is purchased readily by the surrounding mining companies to be used in reducing their ores. The once celebrated Compadre mines, lately rediscovered, are in this vicinity. The present fortunate proprietors found them after a long and painful search. The shafts were found carefully concealed, partially filled with rubbish; and thirteen furnaces in tolerable preservation prove how extensively the mines were once worked by the Spaniards. Here, as in the whole of Arizona, the work of prospecting and exploring has but just begun. The ores of this district are principally argentiferous galena.

West of the Santa Cruz, and south of the valley of the Gila to the Colorado River, the Territory is generally an

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* The Patagonia is now known as the "Mowry Silver Mines."

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ARIZONA AND SONORA.

CHAPTER I.

ADDRESS BEFORE THE AMERICAN GEOGRAPHICAL AND STATISTICAL SOCIETY, NEW YORK, FEBRUARY 3, 1859.

ARIZONA: Origin of the Name.—Boundaries.—Outlet.—The Gadsden Purchase.—Early Settlements.—Mormons.—Mines.—Soil and Productions.—Indian Depredations.—The Valley of the Rio Grande.—The Rivers Mimbres, Suanco, San Pedro, and Santa Cruz.—Tucson.—Tubac.—The Sonoita Valley.—Silver Region.—Desert Region.—Arizona Copper Mine.—Valleys of the Colorado and Gila.—The Pimos.—The Apaches.—Other Indians.—Climate.—Cultivation.—Population.—New Mexico and Arizona.—Importance of the Organization of Arizona.—Copper and Silver Ores.—The Heintzelman Mine.—Other Mines.—The Gold Region.—SONORA: Boundaries, Government, and Population.—Origin of the Name.—Character of the People.—Soil.—Mines.—The Real del Carmen.—Sierra del Oregano.—Ancient Population.—Traditions.—Silver and Gold.—Climate and Productions.—Rivers and Towns.—Guaymas and its Commerce.—Hermosillo.—Future of Sonora.—Pacific Railroad.

THE name ARIZONA is undoubtedly derived from the Aztec. In the original it is *Arizuma*, and the change is a corruption into the present word, which is accepted as Spanish. We have no decided information as to its meaning, but the impression among those who have been curious enough to investigate is, that it signifies "silver-bearing." This impression gains strength from the fact that the Arizona mountains are very rich in silver, and that a tradition of a silver mine, called La Arizona, of incredible richness, still exists among the Mexican people near the frontier of our newly-acquired Territory. The proposed Territory of Arizona is bounded on the north by the parallel of latitude 33° 40′; on the east by Texas; on the south by Texas and the Mexican States of Chihuahua and Sonora; and on the west by the Colorado River, which separates it from California. This great region is about seven hundred miles long, with an average width of about one hundred and forty miles, and contains nearly 100,000 square miles. It is twice as large as New York; embraces within its borders three of the largest rivers on the continent west of the Mississippi, viz., the Rio Grande, the Gila, and the Colorado of the West.*

The Colorado is the only navigable stream, and by its waters and those of the Gulf of California, Arizona is placed in easy communication with San Francisco and the Pacific coast. The natural outlet for the productions of Arizona must be through a port on the Gulf of California, and the acquisition of California necessitates the possession of Sonora. That portion of Arizona now occupied, and to which public attention is now attracted in so remarkable a degree, has been better known heretofore as the "Gadsden Purchase." It was acquired by purchase from Mexico during the mission of General Gadsden, at a cost of ten millions of dollars. In the original treaty, as negotiated by General Gadsden, a more southerly boundary than the one adopted by the Senate of the United States in confirming the treaty was conceded by Santa Anna. The line at present is irregular in its course, and cuts off from our Territory the head of the Santa Cruz River and valley, the Sonoita valley, the San Bernardino valley, the whole course of the Colorado River from a point twenty miles below the mouth of the Gila River, and, worse than all, the control of the head of the Gulf of California, and the rich and extensive valley of Lake Guzman; besides a large and extremely valuable silver region, well known both to Mexicans and Americans—the Planchas de la Plata. General Gadsden's line included nearly all the territory south of the Gila River to the thirty-first parallel of latitude—all the advantages above mentioned—and gave us the mouth of the Colorado River.

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* For boundaries as adopted, see Chapter II.

The Gadsden Purchase is attached by act of Congress to the Territory of New Mexico. At the time of its acquisition there was scarcely any population, except a few scattering Mexicans in the Mesilla valley, and at the old town of Tucson, in the centre of the Territory. The Apache Indian, superior in strength to the Mexican, had gradually extirpated every trace of civilization, and roamed uninterrupted and unmolested, sole possessor of what was once a thriving and populous Spanish province.

In the possession of the writer of these notes is a map drawn in 1757, over one hundred years ago, presented by the Society of Jesuits to the King of Spain. The original of this map is now in the archives of the Mexican government. It was copied, with the notes relating to the Territory and Sonora, Chihuahua and Sinaloa, by Captain C. P. Stone, late of the United States Army. The map bears the inscription, "*Carte levée par la Société des Jésuites dédiée au Roi d'Espagne en* 1757." The copy of the map and the accompanying notes are certified as accurate by the officer of the Mexican government in charge of the archives.

My information, therefore, upon the early history of this comparatively unknown domain, is accurate and reliable. As early as 1687, a Jesuit missionary from the province of Sonora, which, in its southern portion, bore already the impress of Spanish civilization, descended the valley of the Santa Cruz River to the Gila. Passing down the Gila to its mouth, after exploring the country, he retraced his steps, penetrated the country north of the Gila River for some distance, and ascended the Salinas or Salt River, and other northern branches of the Gila. The explorations of this energetic priest did not stop here. Proceeding east, he explored the valley of the San Pedro and its branches, thence along the Gila to the Mimbres, and probably to the Rio Grande and the Mesilla valley. Filled with the enthusiasm of his sect, he procured authority from the head of the order in Mexico, and established missions and settlements at every available point.

The reports of the immense mineral wealth of the new country, made by the Jesuits, induced a rapid settlement. There are laid down on the map before me more than forty towns and villages. Many of these were of considerable size. There were a few north of the Gila, and several on the lower Gila, near the Colorado. The Santa Cruz and its tributary valleys teemed with an agricultural and mining population. Thousands of enterprising Spaniards cultivated the rich valley of the San Pedro, and scattered settlements flourished at every suitable stream and spring at the foot of the mountains toward the Rio Grande. The notes before me say:

"All these settlements and missions were founded in fertile valleys, and by streams and springs, which produced luxuriant crops of wheat, corn, and beans, and in many parts grapes and other foreign fruits were cultivated."

In the western part of the territory were the missions of St. Pierre, St. Paul, St. Matthias, St. Simond, St. Francisco, Merci, the ranches of Eau Cheri, Eau de la Luhe, and others; on the Santa Cruz the missions of San Xavier del Bac, Santiago, San Cayetano, and San Philipe; the towns of Tucson, Tubac, Regis, San Agusta, and many others. San Xavier del Bac is still in existence. It is a mission church of great size and beauty, magnificently ornamented within; forty thousand dollars in solid silver served to adorn the altar. Upon the San Pedro River were the missions of St. Mark, San Salvadore, San Pantaleon, Santa Cruz, and the towns of Quiduria, Rosario, Eugenia, Victoria, and San Fernando—the latter at the mouth—with many more. To the east some small settlements were found on the Valle del Saux, on the Mimbres, at the copper mines north of the Mimbres, and to the south the immense grazing and stock-raising establishment of San Bernardino, where since have been raised hundreds of thousands of cattle and horses. The Indians in the vicinity of the missions were reduced first to obedience by the Jesuits, and then to slavery by the Spaniards.

The notes referred to above contain the names and localities of more than a hundred silver and gold mines, which were worked with great success by the Spaniards. The survey of the Jesuit priest about 1687 was repeated in 1710, with renewed discoveries, and consequent accession of population. From this time up to 1757 the conquest and settlement of the country was prosecuted with vigor, both by the Jesuits' Society and the Spanish government.

The missions and settlements were repeatedly destroyed by the Apaches, and the priests and settlers massacred or driven off. As often were they re-established. The Indians at length, thoroughly aroused by the cruelties of the Spaniards, by whom they were deprived of their liberty, forced to labor in the silver mines with inadequate food, and barbarously treated, finally rose, joined with tribes who had never been subdued, and gradually drove out or massacred their oppressors. A superior civilization disappeared before their devastating career, and today there is scarcely a trace of it left, except scarcely visible ruins, evidences every where of extensive and hastily-deserted mining operations, and the tradition of the councampaigns against them, upon the first opportunity they break faith, and become worse than before. Though it is incontrovertible that the Apaches are the most ferocious tribe on our border, yet the same may be said even of those who, from the time of the conquest, belong among us; they call themselves pacific, yet have never, generally speaking, had sympathy with the whites; they have not adopted our manners and customs, nor have we existing between us that confidence which inspires a same race, when they profess the same principles of social ties; in fact, during the whole period of time that they have been subordinates of our government, they have followed a system of contradiction and opposition against it as far as they were able. The unequivocal proof of this truth have been the frequent assaults that they have made upon us under the pretext of foolish stories with which they were misled, and sometimes without any cause at all."

The whole number of Apache warriors does not exceed two thousand. I have investigated this subject with probably more care than any other person, and am satisfied the number is rather under than over the truth. Being cowardly, they are afraid of Americans, and do not murder.* Their depredations in our territory are mostly confined to stealing cattle, horses, and mules. Arizona will have no peace, and her great wealth as a pastoral region must remain undeveloped, until the War Department sends a strong force, and reduces them by fear of absolute submission. They must be fed by the government, or exterminated. They know no alternative but to steal or starve; and Northern Mexico has been their prey for too many years for them to learn the arts of peace.

The Navajoes are included by Velasco among the

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* Since this address was delivered, information has been received of the murder of several Americans by the Apaches.

Apaches. They live in New Mexico along the 34th parallel of north latitude. The Yumas, the remains of a once powerful tribe, live on the Colorado, near the Gila; they are quiet; sufficiently agricultural to subsist. A few years will leave them only their name.

The climate of Arizona, except on the Lower Gila and the Colorado, is delicious; never extremely hot, with cool summer nights, it offers great attractions to those who desire more genial skies than those of the North. Snow never lies in the winter—seldom falls; frost is rare, though the nights are often cold, seldom freezing. The season for cultivating is long, fruits blooming in February and March. Cotton, corn, wheat, barley, tobacco, melons, grapes, peaches, and all the vegetables, yield profuse crops throughout the Territory. The grape of the Rio Grande valley has no superior, and wine of good quality is manufactured from it. The rainy season in Arizona is from June to September inclusive.

Professor Henry has, I believe, "demonstrated" that no rain falls in Arizona or Sonora. I have not seen his paper, but understand it is a beautiful theory. It is much to be regretted, for his sake, although not for the country, that the facts are against it. Cultivation in Arizona is by irrigation. It is believed, by those who are capable of judging, that, with subsoil plowing, good crops can be obtained without irrigation, and the results of one year are quoted in support of the theory. It will take a series of years to prove it satisfactorily to the farmer. The yield throughout Arizona is two crops from the same land each year.

The population of Arizona to-day [1858] exceeds ten thousand souls, exclusive of Indians; two thirds of it is established on the Rio Grande, in the towns of Mesilla, Las Cruces, La Mesa, Don Ana, Amoles, Santo Tomas, Santa Barbara, Pichacho, and the surrounding ranches, including the floating population of the Gila gold mines. The American population of the Territory is not far from two thousand. This is vastly increasing, and the ensuing spring will see it vastly increased. The gold discoveries, the Overland Mail, which runs throughout the entire length of Arizona, the large amount of capital invested in the silver mines, together with the increasing movement westward of our people, will add largely to the already vigorous and enterprising population of the new Territory. It must be added that there is no law or protection from the government: every man redresses his wrongs with the pistol or knife, or submits in silence.

The Gadsden Purchase was not originally an integral part of Mexico: it was acquired years aftef the treaty of Guadaloupe Hidalgo, and was only attached to the Territory of New Mexico as a temporary expedient. It must also be remembered that the Gadsden Purchase, with that portion of New Mexico which it is proposed to include within the limits of the Territory of Arizona, is separated from New Mexico proper by natural boundaries; that it derives no benefit from the present connection; and that any opposition to the desired legislation arises from the Mexican population, which fears the influence of a large American emigration. Moreover, that New Mexico contains upward of 200,000 square miles, and that its organic act provides for its partition; showing clearly that Congress anticipated at no remote day the settlement of the country by an American population, and its erection into several territories and states. The only effect of the present connection of Arizona with New Mexico is to crush out the voice and sentiment of the American people in the Territory; and years of emigration under present auspices would not serve to counterbalance or equal the influence of the 60,000 Mexican residents of New Mexico. New Mexico has never encouraged American population. She is thoroughly Mexican in sentiment, and desires to remain so.

As a matter of state policy, the organization of Arizona is of the first importance. Situated between New Mexico and Sonora, it is possible now to make it a thoroughly American state, which will constantly exert its influence in both directions to nationalize the other two. New Mexico is at present thoroughly Mexican in its character and vote. Sonora, if we acquire it at once, will be the same. By separating Arizona from it, and encouraging an American emigration, it will become the "leaven which shall leaven the whole lump." By allowing it to remain attached to New Mexico, or by attaching it to Sonora when acquired, the American influence will be swallowed up in the great preponderance of the Mexican vote. The Apache Indian is preparing Sonora for the rule of a higher civilization than the Mexican. In the past half century the Mexican element has disappeared from what is now called Arizona, before the devastating career of the Apache. It is every day retreating farther south, leaving to us (when it is ripe for our possession) the territory without the population.

The American population is mostly concentrated in the centre of the Territory, in and near the Santa Cruz valley, and on the lower Gila, at the gold mines. The Overland Mail Company, by the establishment of their stations at intervals rarely exceeding twenty miles, have much facilitated intercourse and travel; and the emigration of this year will cluster around these stations, pouring a line of villages across the continent—in the language of the President, "a chain of American citizens which will never be broken." The establishment of the Overland Mail is not only one of the great triumphs of the age, but it is an element of civilization which none appreciates but the frontiersman.

The ores of copper found in Arizona and Sonora are usually the sulphurets, principally gray. The ores of silver are argentiferous galena, native silver, auriferous sulphuret of silver, black sulphuret of silver, sulphate of silver, sulphate of iron combined. The gangue is usually quartz or feldspar. I have before me many notes descriptive of various mineral localities, even to minuteness, but the limits of this address will not permit especial mention of them.

The development of the mineral wealth of Arizona has but just commenced, yet enough has been done to give a brilliant promise for the future. The Sonora Company, under the direction of Charles D. Poston, Esq., and more lately under that of Major Heintzelman, of the army, have expended a large capital in opening and prospecting their rich possessions. The Heintzelman Mine—so called after the president of the company—bids fair to become more famous than any of the great mines of old Mexico. From a late letter it is claimed that the ores thus far smelted yield the astonishing average of $950 per ton. I saw this mine in September of last year. About two hundred tons of the ore had already been extracted, and the yield from one small furnace was about one thousand ounces per week. At a cost of $30,000 the company have brought from San Francisco and erected amalgamating works, from which they expect to obtain $3000 per day—a million a year. This mine has the most extraordinary reputation throughout Sonora. I found, in traveling through the state, that almost every shopkeeper knew the value of the ore. It was obtained from the miners, who had stolen, and sold or exchanged it for goods. The Sopori* Mine, which has only been worked in a small way, promises also a rich yield. I have cut with a penknife native silver from ore taken from the Sopori.

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* See Appendix.

San Antonio and Patagonia have been already mentioned, as well as the Compadre Mines. Many others are known to exist, and their owners are only waiting for the protection of a Territorial government to commence work. Others are deterred by want of capital. Several hundred thousand dollars have already been invested in mines in Arizona, and several companies are now forming. It is my profound belief that the most colossal fortunes this country has ever known will be made from the mines of Arizona and Sonora. The Santa Rita copper mine, near the Mimbres, has already been mentioned, as has the Arizona. On the Colorado, forty miles above the mouth of the Gila, on navigable waters, a copper mine is being efficiently worked. It promises to be inexhaustible, and, from its advantageous position, must be immensely valuable. The ore contains a percentage of gold. Silver has also been found on the Colorado, also gold quartz. On the Gila copper is abundant. In fact, the Territory of Arizona seems inexhaustible in minerals. Iron, copper, silver, and gold are found in hundreds of localities. A plumbago mine was discovered during the past year. Quicksilver is the only metal of which no mention has yet been made. I do not know of any in the Territory, though its existence is probable.

Of the great extent of the gold region of Arizona there can be no doubt. The late discovery of placers, or surface diggings, on the Gila, has long been anticipated. Emory, in 1849, expressed his belief in its existence. Many an emigrant, on his way to California, has found "the color." Senator Gwin informs me that he heard of gold on the Gila from emigrants at San Diego in 1849. All the frontiersmen and trappers unite in saying that coarse gold is found in the streams north of the Gila. Marcial, the Apache chief before mentioned, told me the same. That gold in quartz veins exists in many parts of the Territory, we know, not only from ancient record and tradition, but from actual observation and experiment. A vein has been opened, and, as soon as it is safe, will be worked, in the Apache Pass, four hundred miles east of the present placers. Almost every silver and copper vein yet opened shows, by close analysis, a trace of gold. In the Sopori Mine it has gone as high as three per cent. At the Santa Rita del Cobre, the Mexican miners, after their day's labor is over in the mine, work the placers in the vicinity, making sure but small wages. Tradition tells us that many years since the ores of this mine were so rich in gold as to pay transportation to the city of Mexico on mule-back. A gold placer is believed to exist near a Papago village south of Tucson. The evidence of rich gold placers in northern Sonora is indisputable. Work in them has nearly or quite ceased on account of the Apaches, but the record of their past yield is enormous.

The facts in reference to the present condition of the Gila gold mines in Arizona are simply these: At a point on the Gila River, about twenty miles from its junction with the Colorado, and in a succession of sand hills, gold was discovered in September, 1858. The emigrants who were still on their way stopped, and, the news reaching California, others came in. I visited the gold mines early in November, and found about one hundred men and several families. A town called Gila City had already been laid out, and temporary houses of brush and adobe were in the course of erection. I examined carefully for myself, and found that several men could afford to pay laborers three dollars per day and their board to work for them. I saw more than twenty dollars washed out of eight shovelfuls of dirt, and this in the rudest manner, and by an unpracticed hand. I saw several men whom I knew well would not have been there had they not been doing well, who told me they had made from $30 to $125 per day each. I purchased about $300 in gold dust out of a lot of more than $2000. A portion of this dust is here, if any one is curious enough to wish to see it. Several hundred men have come into the mines since I left Arizona. My letters gave me no reason to suppose the mines have given out or shown any signs of failure.*

The country at this point is not inviting, and there are always at any gold diggings men who do not and will not work, and who, if they can not make a living by gambling, or feeding on some one else, depreciate the country. Gold digging is the hardest of all work, and very precarious in the richest mines. A man who is earning a comfortable subsistence at home should hesitate long about giving it up for gold hunting. The old discoveries of gold on the Spanish trail from Utah to California in 1850, the later one in Kansas, at Pike's Peak, and in Arizona, together with the well-known placers of Sonora, establish conclusively the fact of the existence of gold throughout a great belt of the continent from north to south. I am indebted to the Hon. George Bancroft for a copy of a curious and rare letter, which is not out of place to mention here. It is dated at Madrid in 1769, and is addressed to the Duke de Choiseul, minister of foreign affairs for France, by the French embassador to the court of Spain. He says:

(*Extract.*)

"Madrid, 6 Fevrier, 1769.

"M. Galvès qui a passé dans les Californies, a aussi mandé qu'elles abondent en mines d'or et d'argent, et que ces provinces que l'Espagne ne connaissait, pour ainsi dire, que de nom, pourront, dans la suite, produire une augmentation de revenue, fort considérable.

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* The promise of gold placers has been fully realized on the Colorado and north of the Gila, although the point of first discovery has been worked out, or rather deserted for richer districts in 1863 and 1864.

"(Signé), Ossun."

(*Translation.*)

"Madrid, Feb. 6th, 1769.

"M. Galvès, who has traveled in the Californias, has also stated that they abound in mines of gold and silver, and that these provinces that Spain has known, so to speak, only by name, will be able in the future to produce a very considerable augmentation of revenue.

"(Signed), Ossun."

The conclusions to be drawn from the facts I have thus hastily set forth are these: That while Arizona can not be called an agricultural state, she has a sufficiency of arable land to support a large population; that as a grazing and pastural region she has unsurpassed advantages; but her great wealth is found in her inexhaustible mineral resources. There can be no doubt that if Arizona today did not contain a single acre of arable land, her gold and silver, her copper, and iron, and lead, would some day make her one of the wealthiest of the states of the Union.

Sonora, of which Western Arizona once formed a part, is so closely connected in interest with Arizona that a brief mention of her resources and condition is necessary to my subject.

Sonora is bounded on the north by Arizona, on the east by the Sierra Madre range of mountains, which separate it from Chihuahua, on the south by the River Fuerte, which separates it from Sinaloa, and on the west by the Gulf of California and the Colorado River, which separate it from Lower California. Its capital is now Hermosillo, was formerly Ures,* and, more anciently, Arizpe. This state is at present virtually independent. The government is vested in a governor, elected by the people, and a Legislature, consisting of but one house. Some years past the property owners looked forward to annexation to the United States as an inevitable event. The civil war has put an end to these ideas, and peace having been established at home, Sonora looks to herself, with the incidental help given by foreign capital and emigration, for her regeneration and future greatness. That this reliance is well founded, the vast improvement in the past year is a sure indication.

In the preliminary advertisement to *Las Noticias Estadisticas de Sonora*, by Don José F. Velasco, a work from which I have freely quoted, the author says:

"It is necessary to say, without equivocation, that if there be any state among those which compose the Republic of Mexico of which it is difficult to present exact statistics, that state is undoubtedly Sonora. Populated by an indigenous people, disseminated over the whole state, without laws or politics, and mingled with the nation of which it forms a part, it is very difficult to ascertain its numbers from its chiefs. It is for this reason that I have been only able to give approximately the number of inhabitants. I have only undertaken a work that at least approximates toward the truth, limiting myself to certain notices which may give light to other writers on the same subject."

The state of Sonora, thus called by its earliest people of whom we have any knowledge, derives its name, according to the best authorities, from *Sonot*, an Opata Indian word, which means *Señora*, or *Madam*. The Conquistadores were treated with great hospitality by the Opata Indians while visiting their rancherias or villages.

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* The capital is again fixed at Ures.

irreclaimable desert. Its mountains abound in the precious metals, and a sufficiency of water for mining operations can be usually obtained without exorbitant expense. The celebrated Ajo copper mine, now known as the Arizona copper mine, is in this district. Mr. Edward E. Dunbar, whose facile pen has lately presented to the public, through the columns of the *Daily Times*, some lifelike sketches of this portion of Arizona, was formerly the director of this mine, and the first, I believe, to demonstrate the fact that water could be obtained. I take much pleasure in bearing testimony to the conscientious regard for truth which characterizes Mr. Dunbar's statements; and although I am forced to differ with him in some of his conclusions, his knowledge of the country, gained by a long and painful experience, entitle his opinion to much respect. The Arizona Mine will one day prove of immense value; like the rest of the mining companies, it needs the outlet on the Gulf of California.

The valley of the Colorado is fertile, and will produce all the tropical fruits as well as the cereals. The Indians, favored by the annual overflow, raise abundant crops of wheat, corn, pumpkins, melons, and beans. The remains of extensive irrigating canals show that at some day long past a large agricultural population lived here. The extreme heat of the climate in the summer months will prevent white labor from agricultural pursuits to any great extent. Rice, sugar, and cotton are best adapted to the soil of the Colorado bottom. There is in places along the bank a fine growth of cottonwood, and the whole valley abounds with the mesquit. This is the only portion of the Territory where the heat is excessive.

The valley of the Gila River, whose waters, flowing from east to west, divide the Territory nearly in the centre, four hundred miles long, can in most places be brought under cultivation to a greater or less extent. Since the discovery of gold, a number of farms have been opened, and hundreds of acres of rich land put under cultivation. The Gila empties into the Colorado one hundred and twenty-five miles above the head of the Gulf of California. It is well to observe here that the difference in soil in different latitudes has not been sufficiently appreciated. The same soil which, under the climate of Oregon, is barren and worthless, becomes, under the more genial sun of Arizona, fruitful, and, when irrigated, produces the same extraordinary crops as are found in California. The land cultivated by the Pimos on the Gila seems inexhaustible. Year after year they cultivate the same crops on the same land, with nothing but water to enrich it, and there is no sign of failure.

The valley known as La Florida, near the mountain of the same name, in latitude 109°, is worthy of especial mention, as having at its head the ruins of a once flourishing town. A large population will again occupy it at no distant day. But little is known of the country north of the Gila; it is very mountainous, but contains several valleys of considerable size, nearly all of which bear the impress of an ancient and superior civilization. The principal northern tributaries of the Gila are the Salado, the Tuberoso, the San Carlos, and the San Francisco (sometimes called the Alamos). The Salado, according to my informant, Marcial, an Apache chief, has six small branches, four flowing from the east, two from the west. The Salado is the largest of all these streams, and has its source about latitude 34°, in the Sierra Blanca Mountains. On all these streams the Apache Indian cultivates crops, principally of corn. The band known as the Coyetero, Pinal, or Sierra Blanca, cultivate most, although they have had the least intercourse with the whites.

The Indians of Arizona are best classed as "friendly" and "hostile." The friendly Indians are the Pimos, Maricopas, Papagos, and Yumas, with a few scattering, miserable tame Apaches. The Pimos and Maricopas occupy a beautiful and fertile tract on the Gila, one hundred and eighty miles from its junction with the Colorado. They are a brave and hospitable race: they live in villages, and cultivate the arts of peace. Their regular fields, well-made irrigating ditches, and beautiful crops of cotton, wheat, corn, pumpkins, melons, and beans, have not only gladdened the eye, but also given timely assistance to the thousands of emigrants who have traversed Arizona on their way to the Pacific. The costume of the Pimos is extremely simple, only covering their loins, and a small straw hat, except in the case of the chiefs, who wear a sort of pantaloon of coarse cotton cloth. The Pimos and Apaches wage hereditary and fierce war, in which the Pimos are generally the victors. So high were their services valued by the Mexican government as a barrier to the incursions of the Gila Apaches, that whenever they visited the Mexican towns, the authorities treated them with marked hospitality and kindness, making them presents of value, to be paid for by the public treasury. Much as we pride ourselves upon our superior government, no measures* have been taken to continue our friendly relations with the Pimos; and to our shame be it said, it is only to the forbearance of these Indians that we owe the safety of the life of a single American citizen in Central or Western Arizona, or the carriage of the mails overland to the Pacific. The Maricopas live near the Pimos, and by contiguity and intermarriage have become similar in their customs. The Papagos resemble, but are inferior to the Pimos, do not cultivate so much, and live in scattered villages in the central and western parts of the Territory.

The Apache—tribe of fatal memory for Sonora and all

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* The United States government have since, under urgent pressure of the writer, made some small appropriations for the Pimos Indians.

Northern Mexico, are best classified under their modern names: the Mescaleros, east of the Rio Grande; the Mimbres, Mogollones, Chiracahuis, Coyeteros or Pinaleros, Sierra Blanca, and the Tontos. In the order I have mentioned them, west from the Rio Grande, all of these have their homes north of the Gila, except the Chiracahuis. Velasco says these tribes have no fixed residence, no common society, no positive antecedents; they are best compared to the prairie wolf, sneaking, cowardly, revengeful, quick to assassinate the weak, and to fly from or yield to the strong. It is impossible for one who has not seen Northern Mexico to imagine the desolation they have made in a country where Nature has done so much. The name Infelix Sonora—most unhappy—given by all the old writers, is most painfully true: from the Gila, in latitude 32° 30′, to Guaymas, in latitude 28°, their ravages are every where visible. Horrible as is the statement, more than one fourth of the Apaches of to-day are Mexican captives or their descendants. Not only ranches, and villages, and towns, but whole districts, have been depopulated, and the work is still going on. In small parties, and by different mountain passes, they descend into Sonora, surprise and attack a train of travelers or a town, massacre the men, and carry off the women, with such booty as they can hastily seize, to their haunts on the Gila.

I have obtained from Marcial, a leading Apache chief, and still a Mexican, much valuable information respecting these Indians. He had been carried off while a child, and had become, like his captors, savage. Velasco* says: "Without hesitation, it must be admitted that under no good treatment does the Apache yield his barbarism, his perfidy, or his atrocity; notwithstanding the many treaties of peace made with the Pueblos, and the constant new, will wonder at its present incredulity, and regret the loss of advantages which may not always be within its reach."

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* *Noticias y Estadisticas del Estado de Sonora.* José F. Velasco.

Gold dust has been found in abundance in the placers of San Francisco la Cienga, Las Llanos, Ouissabaquita, St. Perfecto; and Soni is famous for its gold mines, also Cocuspera and Baba Seco; in the district of the Pueblo of Cucurpe gold is found in abundance; during the rainy season in Baquachi, district of Arizpe, it is also found in quantities which pay well. In a word, Sonora, considered in a mineral point of view, equals, if not surpasses, the richest country in the known world, and only requires capital, peace, and a liberal government. The new Territory of Arizona, which formerly belonged to this state, is considered by the Sonoranese to be the richest portion of their country.

The climate is good. The rainy season sets in in June, and lasts till the beginning of September; from this month until March occasional showers fall. The cold is never severe, the weather being very similar to that in California in the same months. From March until the rain sets in in June is considered the dry season. The heats are never oppressive—less so than in California. Two crops are raised from off the same land in the year, and which for abundance can not be surpassed in any country—wheat, maize, beans, peas, etc., being the general grain that is cultivated. Sugar-cane is planted in great quantities in Hermosillo, San Miguel, Ures, Rayon, Oposura, Saguaripa, Huepaca, and the Rio Yaqui. A coarse kind of sugar is made called panocha, which yields to the cultivator an excellent return for his labor, generally selling at $25 the cargo of three hundred weight. In all parts of the state most excellent tobacco is raised. Cotton is sown by the Indians on the Rio Yaqui, and the grub (cotton worm) is hardly known in the crops. The average price of wheat is eight dollars the cargo of three hundred weight, beans and peas six dollars.

The state is divided into nine districts, each being governed by a prefect, who is appointed by the governor, and is responsible for the good conduct of his district. The port of Guaymas at present is the only port of entry.* It is a small, but, in the business part, a well-built town, containing about six thousand inhabitants. The harbor of Guaymas is the best on the Pacific coast. Four miles long, with an inner and outer bay, it will admit ships of the heaviest tonnage, and the commerce of the world could be transacted at this port. The entrance is protected by a long island, which makes it doubly secure.†

The principal rivers of Sonora are the Fuerte, the Yaqui, the Mayo, and the Sonora. The Yaqui enters the Gulf of California eighteen miles below Guaymas. It has a dangerous bar, but it is believed to be navigable for light-draft steamers to Buena Vista,‡ eighty miles from its mouth. The Sonora River flows through the Arispe valley, which is called the garden of Sonora. It is almost wholly in the hands of the Apaches. The desolation of the depopulated towns and ranches is melancholy beyond description. The valleys of the Yaqui, Mayo, and Fuerte are the best sugar-lands in the world.

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* Libertad, in latitude 29° 53′ N., has recently been opened.

† The following letter is from the head of the well-known mercantile house of Juan A. Robinson, of Guaymas, Sonora, San Francisco, and other points. It is proper to say that the actual export is nearer five millions than three, a large amount of bullion being exported yearly without going through the custom-house. The trade of Mazatlan is nearer twelve millions than nine.

"Guaymas, October 12, 1858.

"Dear Sir,—In reply to your inquiries regarding the trade of this port, I would observe, the merchandise principally consumed is from England direct, and occasionally from the United States, including goods from the European continent and the East Indies. The amount of imports may be calculated at about three millions per annum of foreign goods, besides a considerable amount of the different manufactures of this republic. Returns are made in gold and silver bullion. And, lastly, wheat and hides [the exports of the former] may be calculated at three millions per annum, and say half a million of the other articles, including copper. Our trade is evidently on the increase. Regarding Mazatlan, from personal observation I should judge that the business done there is about three times more than that of this port, their exports being in coined silver and gold, Brasil wood and hides, principally. I remain, dear sir, in haste, your obedient servant,

"Juan A. Robinson.

"Hon. Sylvester Mowry, Delegate from Arizona."

‡ Doubtful.—S. M.

Ures is a small city of about seven thousand inhabitants, and is situated about sixty leagues from Guaymas. Hermosillo is the largest city, containing from fourteen to fifteen thousand inhabitants. It is the centre of commerce. It is one hundred and ten miles north of Guaymas.[*] The next in size and importance is Reál de Alamos, situated on the frontiers of Sinaloa: it contains from five to six thousand inhabitants; it is the centre of a large mining district, as its name implies—Reál meaning town or city of mines. Oposura, Saguaripa, Rayon, St. Miguel, and Arispe, the ancient capital of Sonora, are large towns, with populations of from four to five thousand each. The entire population of Sonora does not exceed one hundred and thirty-five thousand, comprising Mexicans (*jente de razon*), Opatas, Yaquis, Mayos, Taumales, and Papagos: this population, instead of increasing, is decreasing—the Apaches, revolutions, and emigrations to California and Arizona producing this effect; and in a few years, if some change does not take place, Sonora will become depopulated. Mr. Hall, the friend to whom I am indebted for many of these notes, says:

"After so many years' residence among them, I naturally feel an interest in their welfare, firmly believing that the grain of gold in their character among so much dross is worthy of seeking out, and will repay the finders. The

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[*] A mint has been established at Hermosillo, which is in successful operation, having all the modern mechanical appliances for coining gold, silver, and copper. The right to coin is a monopoly in the hands of capitalists. The present superintendent is Mr. Symonds, an English subject, assisted by Mr. Bowring and Mr. Monteverde.

United States could do it, and would to God it should be so; and I and many others will be found ready to cooperate in any just and honest mode of bringing round a mutual good understanding. . . . . . But one conclusion can be drawn of the State of Sonora, and that is, in order to redeem to the Sonoranese his character, life, and fortune, it is necessary to subject or utterly annihilate the savage Apache, who has served as the destroying angel to this fine country. It is the most sure and ready way to gain the eternal gratitude and friendship of the people, and annexation of one of the richest countries in the known world, which will also serve as another connecting link of the great chain of commerce with the Indies."

Velasco says, in concluding his review of Sonora and the Sonoranese:

"In truth this is a most sorrowful scene; it horrors one to consider the state of prostration which we are now in, by the continued bad feeling of party, which keeps us savage in civil war, and all the while forgetting our own interests. For parties to harass each other mutually; for brother to slaughter brother to satisfy revenge, etc., in a moment, are formed enthusiastic masses; but the same does not happen when the common enemy is to be punished, who are now with gigantic strides destroying the country. Until the Sonoranese shall know that as long as they do not bury in the fold of their country, and each one give a brotherly embrace in good faith, we shall continue to be the plaything of passions the most strong and savage."

Having had considerable practical experience on the plains, four journeys overland across the continent in the past four years,* I was desirous of stating a few facts, showing the comparative merits of the different routes for a Pacific railroad. The limits of this address will not permit, and I therefore turn from the subject, with the prediction that the route known as the Southern, along the 32d parallel, is the only one that will be built in this generation.* Every exploration has shown it to be not only the most practicable, but probably the only practicable route. The advocates of this route point to the significant fact that the mail from San Antonio to San Diego has never once failed in eighteen months of operation, winter or summer. The Great Overland Mail makes its best time on the 32d parallel, and that portion of the route denounced as the worst, from El Paso west, has proved itself the best. Thirteen hundred miles by stage in December or January in less than eight days. Is there any other route on the continent where this can be accomplished? Not on the Salt Lake route. It is wholly impracticable. Not on the Albuquerque route, else Lieutenant Beale would not go into winter quarters. On the 32d parallel no winter quarters are necessary. It is useless to attempt to evade this question of climate on so extended a route. In addition, the 32d parallel is by far the most level, and has the most water at all seasons of the year. (See Lieutenant Parke's Report.) The first terminus of the Pacific railroad will be Guaymas, on the Gulf of California. From El Paso to Guaymas the distance is only about four hundred miles—at most four hundred and fifty. It will run across the Gusman valley through the Guadalupe or some more southern pass to Arizpe, thence to Ures, thence to Hermosillo, thence to Guaymas. It can be built most, if not all the way, for $10,000 per mile, and put in running condition. It would pay to-day between Hermosillo and Guaymas in freight alone. It will traverse a rich agricultural and mining country, and can connect with San Francisco and all the

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* Since doubled.

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* See Speech of Jefferson Davis in a subsequent chapter.

Pacific by steamers. A branch from Arizona down the valley of the San Ignacio would give Arizona the outlet she so much desires for her productions. It connects with the Texas road at El Paso, and, notwithstanding all the predictions to the contrary, the Texas road will be built. Should it be deemed desirable to extend at once to the Pacific, a steam ferry across the Gulf of California, and short railroad across Lower California to a roadstead on the Pacific, accomplishes the desired end. If these views were elaborated, they could be supported by an array of evidence not to be overthrown.

In a report made to the Viceroy of Spain during the early settlement of the province of Arizona and Sonora is found the following words: "A scientific exploration of Sonora, with reference to mineralogy, along with the introduction of families, will lead to a discovery of gold and silver so marvelous, that the result will be such as has never yet been seen in the world." The Spanish race have but just touched these treasures. It remains for the American people to make good the prediction. With the organization of Arizona and the acquisition of Sonora, a new impetus will be given to the Pacific. The Mexican population will recede before the energy of American career. At Guaymas a city will go up which shall have no parallel in the magic of her increase except San Francisco. The *auri sacra fames* is as strong to-day as in the days of old. Allured by the story of the new El Dorado which is just opening, tens of thousands of emigrants will hurry thither. Our empire on the Pacific is just founded. Its growth in the future will equal that of the past, if the United States seizes the golden opportunity now offering. The wealthiest and most delightful of countries will be redeemed from the barbarism into which it is so fast falling. An immense market will be opened for northern productions; commerce will again be stimulated as it was by California; and the predictions of Humboldt, that the balance between gold and silver would one day be restored, will be made good from the treasures of Arizona and Sonora.

CHAPTER II.

CONDITION OF ARIZONA FROM 1859 TO 1864.

Rapid Advance of Arizona.—Reverses.—Withdrawal of the Overland Mail.—Ravages of the Apaches.—Mining Discoveries.—The Heintzelman and other Mines.—The Military Position.—The Mowry Silver Mines.—Arrest of the Proprietor.—His Release.—The Mines worked on Government Account.—The Apaches, and how to deal with them.—General Carleton.—Arizona in 1864.—Progress of the Mines.—The Mowry Mines.—Mr. Küstel's Report.—The Boundaries and Organization of the Territory.

THE history of Arizona since 1859 has two aspects—one of great and steady improvement, the other of calamity and decline. The first was the natural result of the development of the great natural resources of the Territory; the second of fortuitous circumstances, and the shameful abandonment and neglect of the country by the administration at Washington. The uninterrupted success of the Great Overland Mail brought in its train a constantly increasing immigration. The valleys of the Santa Cruz, Sonoita, San Pedro, and Mimbres were rapidly filling up with farmers, while on the Gila many thousand dollars were expended in taking out acequias, and redeeming the rich bottom lands at available points. The Federal Government promised protection, and did, in fact, establish new military posts to protect the infant settlement. These posts, however, were poorly garrisoned. The troops were mostly infantry—almost useless to pursue or punish the Apaches. The small cavalry force in the Territory, although most ably handled by Captain R. S. Ewell, First Dragoons, United States Army (since Major General Ewell of the Confederate Army), was en-

As a mark of friendship, the Indians strove to imitate the Spanish pronunciation *Señora*, instead of using their own word *Senot*, from which arose the corrupted word Sonora. Sonora has been divided, by various writers, into Upper and Lower Sonora—into Pimeria Alta and Pimeria Baja; and still farther into the subdivisions of Arizpe, Cieneguilla, and Horcasitas in the north, with Hostimuri, Alamos, and the Pueblas of the Mayo and Yaqui in the south. The state formerly included Sinaloa, from which it was separated in 1830. It is said to be a part of the plan of the present governor, Pesqueira, to again unite these states as the basis of a new confederacy.*

The people of Sonora are generally docile, and, making allowance for the bad system of government and the great misery in which they are found, are obedient to the constituted authorities: in fact, this remarkable docility amounts to weakness of character, and which ambitious revolutionary chiefs have taken advantage of to forward their own views. For many years there has been much suffering from revolutions and Indian depredations, and without hope, until now, for the better, it is not surprising that the Sonoranese lost his energy of character. He gambled to divert himself and pass away time, and, without hope for the future, he allowed things to take their course—a perfect fatalist. Some become desperate, and take unlawful measures to better their condition. It is an unquestionable fact that the association with Americans, regular labor and assured employment, dependent upon good behavior, is fast regenerating the Sonoranese. The miners and farm laborers show great ambition to emulate the work of an American, and to prove that they can do as much in the same time. It only requires a skillful hand and a good government to make the shiftless Sonoranese of the present day a useful member of society. Comparatively few educated men are found in Sonora—a common education consisting of reading and writing, and I believe that in the whole population it does not exceed ten per cent. more, particularly in the frontier towns. A leading trait in their character is hospitality, and "let the morrow take care of itself" is a common expression in their mouths. He will share his last mouthful, and considers it a matter of course for the stranger to take his place at his board. The women are kind-hearted, obedient to their husbands, who rule them generally with a rod of iron. "Strong-minded" women are not known, and usually peace reigns in their homes.

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* Not confirmed. A close alliance, however, exists between the governments of the two states.

Sonora, for the most part, is mountainous, watered by several small rivers, abundant in mineral wealth; in fact, is considered to be one of the richest states of the Mexican dominion. There is a sufficiency of agricultural land to maintain a large population; but the true richness of Sonora consists in its mines of silver and gold, and the great facilities for raising stock. The mines at present are but little worked, owing to the Apaches and revolutions; but, laboring under all these disadvantages, she is still able to export annually several millions of dollars in silver bars and gold dust, large quantities of stock to California and the Territory of Arizona; also flour to the adjoining state of Sinaloa.

The most famous mines and mining districts (minerals) are those of Alamos, situated in the district of that name, and property of the Almadas, Gomez y Urreas; mine of Subiate, near Hermosillo, property of the Monteverdes; "mineral" of San Xavier, San Marcial, St. Teresa de Jesus, property of Ynigo, Cubillas & Co.; the famous mine or mineral of Babacanora, at present worked by a French company; mine of Baramachi, the richest mine discovered within the last two years, having yielded $1000 to the nine hundred weight of ore and very abundant in ore—at present the yield is not so great; mine of Corral Viejo, gold, silver, and lead; La Cananea, silver, copper, and lead; La Guachuca; las Planchas de Plata.*

On the opposite side of the mountain of Babacanora, at the distance of about a league and a half, is found the Reál del Carmen, celebrated for its great mine of that name, and which has been worked to a great extent. It still yields a good profit to the "*Gambussino,*" a sort of mining filibuster, who works regardless of the future of the mine. Ores are still found which yield from ten to twenty marcs to the carga. The ores are native silver, auriferous silver, gangue, quartz. This mine was worked in the first years of the Spanish conquest of Mexico by Hernan Cortez, in later years by a company of Spaniards, who found a chart and description of the mines in the archives of Mexico. It is remembered by the oldest inhabitant of Sinoquipe that native silver, six inches wide, was cut out of the vein and melted in the refining furnace without more treatment than a lead bath. This company, owing to the changes which took place in the Mexican territory, stopped work, carrying off with them several trains of mules loaded with silver; the mine then partly filled with water, and the gambussinos, who have been and are the cause of the destruction of so many good mines, commenced operations, cutting out the upper pillars and supports, and in a short time the mine fell in, leaving treasure to an enormous amount buried in the ruins; in later days shafts have been sunk on the same lode, worked, and ores rich in silver have been encountered, paying from fifteen to twenty marcs to the nine cwt. In the rubbish which was thrown out of the old mine, a comfortable subsistence is gained by washing in bateas—

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* See a subsequent chapter for a full description of several Sonora mines.

quantities of grain silver being found which, refined in the furnace, yield from twenty-five to thirty per cent. pure metal. This, and several other mines of Sonora, have been abandoned, not from the ores having failed or depreciated in value, but from the want of energy in the Mexican race. The mines in the hands of the Spaniards yielded enormous profits to the miner; they were men of indomitable enterprise, who employed capital, science, and spared no expense to succeed in their adventures; whereas the Mexican is poor, without energy, and too lazy to trust or help himself. Formerly, Sonora the rich was a proverb; now, Sonora the poor is a stubborn fact —but not from the want of the elements of richness. These once developed, she will once more become Sonora the rich, and may be great.

"In the Reál of Babacanora," writes John Denton Hall, Esq., to whom I make grateful acknowledgments for many of the facts connected with Sonora, "a miner is enchanted, and his hopes raised by seeing the beautiful formation which the whole district presents, more particularly that portion which comprises the 'Sierra del Oregano,' which, viewed from the houses, presents a magnificent spectacle. My poor pen can not do it justice, so I shall content myself in stating a few facts concerning it which came to my knowledge: Veins of ore rich in silver are known to exist, from the fact of ore being found in several parts of the mountain. Many capitals have been invested and lost in speculations utterly worthless; whereas a small one, invested in making a good search and prospect of this mountain, would not be lost. This statement I make after many years mining experience; myself and many other miners who know the mountain will stake our credit on many tons of precious metal being hid in its interior. The formation clay state—the richest in Sonora—the fact of rich ore having been found on its sides and ravines, and the number of rich mines in the vicinity, all lead me to suppose such to be the case. The mines on mines of El Oregano must wait until some adventurous miner will expend a thousand or two to enrich himself with millions.

"Mention has been made of an ancient population. On making particular inquiries respecting them, I find that they are common in all parts of the Sonora River, and even on the River Gila. The River Sonora, from its length, quantity of water, and abundance of cultivable land, is peculiarly adapted to maintain a large population. Many of the ruins are of great extent, covering whole table-lands, proving that in former times Sonora was much more thickly peopled than at present. Undoubtedly some regularity was observed in laying out these towns. In one I found what appeared to have been a fort; by its position it was well calculated for defense. Unfortunately, no documents exist from which dates could be taken, the archives, and all belonging to the mission, having been destroyed at the time the Jesuits were expelled. It is a known fact here, and I believe in many other countries, that the order of Jesuits have done more toward civilization among the Indians than any other religious order in existence. It is undoubtedly the case in Sonora; the ruins they have left behind them prove that they were equal to the task they undertook; and among the old people their kindness and wisdom are still remembered and talked of. * * * * *

"The tradition is current here, and in all parts of the Opata nation, that the great Montezuma was the chief of their tribe, and a great warrior. After subjecting the other tribes to his rule, he determined on building himself a city to live in on the River Gila—in Casas Blancas. He commenced operations: not liking the situation, or being somewhat disturbed in his work by the Apaches—the only tribe which had not submitted to his rule, joined to the bad omens observed by the priests — he determined to travel in search of a good location, favored by his gods. At the time of commencing his new journey, an eagle was observed to be hovering over the camp; orders were given to observe the bird's flight, and its resting-place ascertained; his commands were obeyed implicitly, and the eagle was found in the Lake of Mexico, perched on an opal, with a rattlesnake in its beak. Here Montezuma founded the city of Mexico, which would have remained in his possession up to the present date if Hernan Cortez and his gallant adventurers had not disturbed his calculations in a most important manner. Such is the tradition, and it is considered heresy among the Opatas not to believe it. Eagle, snake, and opal is the escutcheon of Mexico. Snake alone would be more appropriate.

"Humboldt mentions in his travels having seen the ruins of Casa Blanca, on the River Gila. Another tradition is current also of Montezuma having told the conquerors of Mexico that it would be an easy matter for them to subject to their rule the whole of the Indian tribes, but the Apaches never. We shall see what Uncle Sam can do with them in a short time."

The yield of the silver mines of Mexico, as compared by Ward and Humboldt from the actual official returns to the government, from the conquest to 1803, amounts to the enormous sum of $2,027,855,000, or more than TWO BILLIONS of dollars! Again, Ward says: "I am aware that many of the statements in this and the preceding books respecting the mineral riches of the north of New Spain (Sonora, including the Gadsden Purchase, Chihuahua, and Durango) will be thought exaggerated. They are not so. They will be confirmed by every future report; and in after years, the public, familiarized with facts which are only questioned because they are under the best circumstances, at least twenty-five per cent., and generally more, owing to careless attendance and the inability to regulate the heat or the blast. The fault was in the construction of the furnaces, not in the principle. There are twelve of these furnaces at the reduction works, six of which are run alternate weeks. The yield is of course lead and silver, which is shipped to Europe in bars weighing about seventy pounds each. These bars sell in England at from $200 per ton upward, giving a clear profit over all expenses—mining, smelting, freight, insurance, and commissions—of over $100 per ton. A portion of these bars are refined at the mines in the English cupel furnace (the Mexican *vaso*), to supply silver for the payment of current expenses. The silver is moulded into bars, from $2 up to $300, and is a ready and convenient circulating medium in a country where coin exists only in the memory of some individual who has been in California. Twenty-five tons of the Mowry ores were sent to Europe as specimens in 1862. The result was an offer of £50 sterling ($250) per ton for the ore as it ran, properly cleaned. The results to be obtained from these ores treated by the improved furnace are much greater than by the present method.

In June, 1862, the proprietor of the Mowry Silver Mines was seized by a large armed force, under the orders of General J. H. Carleton, while in the legitimate pursuit of his business, and retained as a political prisoner for nearly six months. This seizure was made upon a false, ridiculous, and malicious charge. After nearly six months' close imprisonment the writer was discharged, "*there being no evidence*" (in the opinion of the court which tried his case), "*either oral or documentary, against him;*" a charming commentary upon the constitutional guarantee to every citizen of "life, property, and the pursuit of happiness." The mines were placed in the hands of a dishonest and incompetent man as government receiver, who did much damage, caused great loss, and finally, on being obliged to give up his place, made away with nearly all the goods, wood, coal, arms, and stores at the mines. No improvements were made during this person's administration, and the property now being held by the Federal Government, under pretense of the Confiscation Act, none can be made by the owner until his property is restored to his possession. This will undoubtedly be done as soon as the authorities at Washington can be heard from, as the seizure was illegal, and dictated by personal hostility on the part of General Carleton.[*]

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[*] The following is an extract from the Journal of the Senate of the United States, June 18, 1864:

"The President *pro tempore* presented a message from the Secretary of War, covering a report of the Adjutant General, in reply to the resolution of the Senate of May 20, 1864, relating to the seizure of the silver mine of Sylvester Mowry, in Arizona, by order of General Carleton, commander in New Mexico, and asking by what authority the mine is now worked,and what disposition is made of the proceeds.

"The Adjutant General relates the fact of the arrest of Mr. Mowry, under order of General Carleton, on the 8th of June, 1862, on a charge of treasonable complicities with the rebels, and in view of a circular issued by Brigadier General Wright, commanding the Department of the Pacific, declaring all property of enemies of the United States subject to confiscation. The property of Mowry was also seized, and a board of investigation appointed by General Carleton reported it as their opinion that he had given aid and comfort to the enemy, and that there was sufficient reason to restrain him of his liberty, and bring him to trial before a military commission. Mowry was then confined, July 2d, in Fort Yuma, California, awaiting trial; but on November 4, 1862, was unconditionally released, under orders from our War Department, Judge Turner directing the commander of the fort to investigate the cause, and retain or release the prisoner as might appear right. There being no evidence before the board, he was released accordingly. Since then Mowry has issued notice to the United States District Attorney for New Mexico and to the United States Marshal, alleging illegal seizure of his property, and, on the 12th of December, 1863, filed in the Fourth Judicial District of California a complaint against General Carleton and the officers who acted under his orders in the seizure. It is inferred, therefore, that the property has passed from the military to the civil authority; and as to by what authority the mine is being worked, or what disposition is made

The yield of the mines with the present furnaces, when all are in operation, is about $4500 per week of silver, refined at the mines. The refuse from the refining furnaces, litharge, is sold in Sonora, to be used as a flux at such mines as the Bronces, Cruzecitas, Mina Prieta, and others containing refractory ores. It is correctly estimated that the sale of the litharge will pay all the expenses of the mines. As soon as the property is restored by the government to its rightful owner, a number of improved blast furnaces will be erected, and the mines will be made to pay at once $2000 per day. The supply of ore is immense, easily mined and brought to the surface, daily growing more abundant and richer. I have been thus specific in the description of these mines to give a clear idea to those who seek investment in mines of the great value of the Santa Cruz district of Arizona.

A new mine, called the "Olive," has been discovered, and opened to a considerable depth near the Mowry Mines. It is of the same character, and probably the same lead as that of the Mowry Mines. It is owned by the discoverers, three of my workmen. A controlling interest has been or will be purchased by capitalists here, and by Captain C. E. Mowry. La Esperanza, five and a half miles from the Mowry Mines, almost on the Sonora line, has been opened sufficiently to demonstrate the existence of an extensive lead. There are nine veins cropping out on the surface, which can be tunneled a thousand feet below the cropping. The ores are argentiferous galena, very rich in silver and lead. It is in all respects as valuable a mine as could be desired. It is owned by a company organized here, of "solid men," and will be immediately worked on a large scale.

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of the proceeds, there are no documents on file in the department affording information. The report was ordered to lie upon the table and be printed."

The experience gained by the works of the Mowry Mines will enable the Esperanza and other similar ores to be treated at much less expense, and give large dividends at an early day. It is some consolation to me that my mistakes, costly as they have been, will be of incalculable benefit to those who are now investing their capital in Arizona. Some one had to be the pioneer, and it was perhaps appropriate that it should fall to my lot, as I was the first to introduce Arizona as a candidate for the honors of a new state. The advantage these mines of lead and silver possess over the more refractory ores containing copper and sulphurets is the great ease of reduction. Fire is the only requisite. They contain their own flux. No expensive machinery, quicksilver or salt, or other foreign flux, is needed, and the lead will pay all the expense of working, reducing, and shipping, giving the silver clear in the English or San Francisco market, if shipped in the form of lead and silver bars. If refined at the mines, the litharge (*greta* in Mexican mining phrase) will pay all expenses above stated. The demand for litharge is increasing, and there will always be a good market for it, on account of the working of new mines in Arizona and Sonora. The Pattinson process of separating lead and silver is cheap and economical of both metals, but at present will not pay as well as the method now in use.

In connection with this subject, it is proper to say that the immense advantage Sonora and Arizona have over California or Nevada for the development of mineral wealth is the low price of labor—fifty cents to one dollar per day, paid in great part in merchandise at large profits. Transportation is also much less. Those interested will do well to inquire particularly into these points, as well as into the character of the mines. Both Arizona and Sonora will bear the most searching scrutiny, and will reward the inquirer. It is as well to say here that capital in large sums is needed for the successful prosecution of silver mining. This is a condition precedent which must be fully accepted, but with less capital than any where else greater results can be obtained in the countries in question.

In Eastern Arizona, near the head waters of the Mimbres River, gold has been discovered in placers and quartz. A town called Pino Alto has been built up, and at one time over a thousand people worked in the vicinity. With the withdrawal of the troops this district suffered, but still many remained. The late establishment of a strong military post at this point will assist greatly in its development. The copper mines of ancient fame in the Mimbres have fully sustained their old reputation. Smelting works have been erected, new mines opened, and the copper in pigs shipped in wagons to Lavaca, Texas, thence to New York. The copper sold at higher rates than the Lake Superior, and paid a handsome profit to the owners, notwithstanding the great distance it was transported. These mines, as they have been in the past, will continue to be a source of large revenue to the proprietors.

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The mines in the Organ Mountains, near the Rio Grande, are not in operation. The Stevenson, Harris, and others are certainly good mines, and will be made profitable. In other chapters I give some mining notes, written by competent persons from actual observation.

The presence of two thousand troops in Arizona, whose number is soon to be doubled, and the orders lately given, will prove the death-warrant of the Apaches. It has been already stated that their bravest and most dangerous band has been severely punished, with the loss of their principal chief and many men. The subordinate officers of the California Column are eager for the fray, and are the men worthy of all praise for endurance and the qualities which make good Indian fighters. I anticipate for Arizona a steady and prosperous career.

The Apaches—these "devils," as they are well called by the Mexicans—have grown more daring and ferocious in the past few years. Emboldened by the shameful neglect of the general government, they stopped and robbed the mails, killed travelers, and at last attacked ranchos. Coming into possession of fire-arms, they grew monthly bolder, until at length, in 1861, gaining a doubtful victory over about sixty U. S. troops, commanded by a young, inexperienced lieutenant, they declared and have since maintained open war. The Federal Government has been begged, entreated, prayed, to do something, but it has never done it until now. I think I never saw so many astonished and angry faces as I did when reading President Lincoln's last annual message to a crowd in Tucson in January last. When I finished that portion which refers to the Indian atrocities in Dacotah and Minnesota—"What!" said every one, "not one word about Arizona or the Apaches? Why, we have lost ten lives where they have lost one—thousands of dollars where they have lost hundreds."

The utter neglect by the government of this Territory is a crime which has brought its own punishment, but we have had it to bear. General Carleton, now commanding in Arizona, has a large force at his disposal, and he promises to "clean out" the Apaches root and branch. He can do it with the means at his disposal. If he does not, no punishment is too severe for him. Few commanders have so good an opportunity to become public benefactors. He has begun badly, and wasted much valuable time, but he can bravely redeem it.*

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* I am sorry to say that General Carleton has gone from bad to worse. The Apaches have not been subdued, but have committed their worst outrages under Carleton's weak and cowardly policy.—S. M., 1864.

My own success is ample proof that the Apaches are not a serious obstacle to the working of mines in Arizona. The danger to be apprehended is on the roads, and this can be avoided by ordinary caution. In fact, almost every disaster has been caused by recklessness or utter carelessness in taking precautions dictated by common sense.

Governor Pesqueira, of Sonora, has offered a bounty of $100 per scalp for Apaches, and a proportionate sum for animals retaken from them. This should be imitated by the authorities of Arizona. The Pimos and Papago Indians would be most valuable auxiliaries in the pursuit and massacre of these "human wolves." They lately killed about sixty Apaches and took several prisoners in a single campaign. The children of the Apaches, when taken young, make good servants, and are sold by the Pimos in the Territory and in Sonora.

There is only one way to wage war against the Apaches. A steady, persistent campaign must be made, following them to their haunts—hunting them to the "fastnesses of the mountains." They must be surrounded, starved into coming in, surprised or inveigled—by white flags, or any other method, human or divine—and then put to death. If these ideas shock any weak-minded individual who thinks himself a philanthropist, I can only say that I pity without respecting his mistaken sympathy. A man might as well have sympathy for a rattlesnake or a tiger.

The foregoing paragraphs, with the exception of a few notes, which are dated, appeared in the second edition of this work, published in 1863. I append some notices of the condition of Arizona subsequent to the date of that edition:

The eastern portion of Arizona, bordering on the Colorado River and thence to the country north of the Pimos villages on the Gila River, has within the past year received large accessions of population. Gold in quantity is found on the Salinas, the Verde, and other tributaries of the Gila; and the silver and copper mines of the Colorado region are developing with unparalleled richness.

In Southern Arizona work has been commenced anew on the Heintzelman Mine, with results which promise to fulfill all that has been claimed for this noted mine. The Santa Rita mines are also again in operation, with abundant capital. The Mowry Silver Mines have produced about their average amount of silver; and, with the improved furnaces soon to be erected, will largely increase the yield.

The following is the Report, sent by telegraph, of Guido Küstel, Metallurgist and Mining Engineer, upon the Mowry Silver Mines:

"San Francisco, April 20, 1864.

"The lode, which is over fourteen feet wide, runs east and west, between limestone and granite-like porphyry. It consists of sulphurets and carbonates of lead in manganese, often pure, containing iron, frequently in large chambers. Its great advantage is the presence of iron, manganese, lime, and lead, so that the necessary fluxes are in the ore in abundance. The greatest depth worked is 180 feet. There are four galleries.

"The present style of furnaces and system of purification are more like waste than rational working. Nevertheless, these furnaces paid all expenses, with 120 men employed.

"The present expense of working six tons per day is fifteen dollars per ton. There are many thousand tons of rock out in front of the main shaft, half of which is fit for melting after very simple concentration.

"Wood is abundant. Live oak costs one dollar and seventy-five cents a cord.

"With furnaces four feet square and ten feet high, and tirely unable to make a campaign with decisive results against the Indians. In spite of this serious drawback new mines were opened, capital obtained in the East for their development; the farmers flourished and built permanent improvements, and each year showed a decided advance upon the last.

The change came suddenly and without warning. The Overland Mail was withdrawn, then the troops, and the settlements in the valleys above-named succumbed almost at once to the attacks of the Apaches. Many lives were lost; property of all description was abandoned; crops to an enormous amount were left standing in the fields, never to be gathered. Never was desolation so sudden, so complete. In my late journey from Tucson to Guaymas, I passed over one hundred and fifty miles of beautiful country, studded with ranches and farms, where at every step were found comfortable houses, out-buildings, fences, and tilled fields utterly abandoned and tenantless. The mining interest suffered at the same time. Partly through the cowardice of agents and superintendents, partly through the fault of Eastern directors, the various silver mines in Central Arizona were temporarily abandoned, and I was left with a handful of men who were willing to share my fortune, and, if Fate so willed it, be the last Americans in the Territory to fall by the lance or arrow of the Apache. We not only survived, but we built up a great work in the heart of the country; thoroughly demonstrated the great value of the mines; and, what is more and better, proved conclusively that the Apaches are no obstacle to working in the Territory, compared to the great result to be accomplished. It is sufficient proof of this that I did not lose two hours' work in ten months on account of the Indians. Some valuable lives were lost, but it was by recklessly disregarding my repeated injunctions and directions.

The Territory has been occupied by Confederate troops, but in small force, except on the Rio Grande. After their retreat before the forces of General Canby—not General Carleton, as is falsely stated—Arizona was occupied, and remained in the possession of the California Volunteers.

The gold fields on the Gila River, alluded to as a new discovery in my address, proved limited in extent; and although worked mostly by Mexicans for several years with a large yield of gold, were deserted about a year ago for the more attractive placers of the Colorado. It is said that an enterprise is on foot, under the auspices of well-known business men, to bring water from the Gila on to this ground by steam power. The result can scarcely fail to richly reward the authors of the enterprise [1863].

At various points along the Colorado, on both sides of the river, gold has been found capriciously disseminated, some spots yielding enormously, others nothing. Chimney Peak, eighteen miles from Fort Yuma, was in November and December a favorite locality. La Paz, about one hundred and eighty miles above Fort Yuma, was previously a great attraction, and is since. At this point quite a village had grown up when I visited it in November, 1862. The population was then about eight hundred, and increasing. No distinct or well-defined ledges had then been discovered, but the most beautiful specimens of gold quartz, silver, copper, silver-lead, and silver and copper I ever saw, had been found, all of which, upon assay, gave astonishing results. I am informed since that extensive ledges have been discovered and are being prospected in this district. Copper has also been found below La Paz, at different points on and near the river. Salt has been found near the Colorado in such large deposits as to guarantee a supply of this very necessary aid to the reduction of the refractory silver ores. Adventurous "prospectors" have penetrated the country lying between the Gila and Colorado, beyond the Desert belt, and, making a temporary peace with the Tonto Apaches, have found on the head waters of the Salinas and San Francisco Rivers and their small tributaries good gold prospects, and an abundance of water for sluicing. All these parties, from whom I have notes of their explorations, confirm the reports made to me several years since by Weaver, the old "mountain man," and by Apache and Pimo chiefs, of the existence of rich valleys, heavy timber, and fine pasture-lands north of the Gila. The country north of La Paz, near the Colorado on both sides, is at present attracting much attention, and great discoveries are daily reported. The navigation of the Colorado by steamers to the vicinity of these mines must make them very valuable at no distant day.

The mines in Central Arizona, in the Santa Cruz and Santa Rita Mountains, and near the Sonora line, have been fully prospected, and no doubt now exists in the minds of the well-informed of their great value. The Heintzelman Mine, now owned, I believe, almost entirely by the heirs of Colonel Samuel Colt, is not at present worked, owing, I believe, to the death of Colonel Colt. There is no doubt of the richness of this mine. It was fully proved under the management of Mr. Küstel. Magnificent machinery for the Freyburg barrel-process, with engines of eighty horse power, were sent out from New York three years since, the whole manufactured under the personal supervision of Colonel Colt, whose mechanical genius has rarely been surpassed. Jealousy on the part of Western stockholders, and an insane fear that Colt would "freeze" them all out, delayed the erection of this machinery; bad management at the mine, and other causes, impeded progress until the troops were withdrawn from the country, and the last manager for the company, Mr. C. D. Poston, turning over his right to Colt, left for the East. The present superintendent, Colonel F. T. Lally, has, he informs me, opened a new shaft, in which he has struck very rich metal; but, as above stated, work is now suspended. During the temporary abandonment of this mine, the Mexican "gambussinos" carried away immense quantities of rich metal; and the village of Saric—just over the Mexican line, where the ore was reduced—flourished and grew rich upon the folly of the Eastern managers.

The Sopori and Arizona Land and Mining Companies, who own a vast tract of mineral, grazing, and arable land in the Santa Cruz valley and vicinity, have also suspended operations. Their stock is held in good hands, and will be good property. They intend, I am informed, to recommence operations at an early day. Some of the heaviest Eastern capitalists are the principal owners of these stocks.

The Santa Rita Company own some valuable mines north of the town of Tubac. They suspended operations at a time when success was just in their reach, partly, I believe, from bad management, and partly from the withdrawal of the troops. They will, I presume, recommence, now that a large military force occupies the Territory.*

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* The separation of Arizona from the Military Department of California is a great mistake. Under any circumstances, if economy and time are consulted, army supplies must be drawn from California. The military posts called Fort M'Lane and Fort Breckenridge were established by the War Department upon the recommendation of the writer, while Western Arizona was placed under the control of General Clarke, United States Army, then commanding the Pacific Department. General Clarke did me the honor to consult me on several occasions, and at his request I selected a site for a new military post near the mouth of the Salinas, a few miles from the Pimos villages. This post must some day be established. The views of General Clarke were similar to my own in reference to supplying Arizona from California.

Many mines—the San Pedro, San Antonio, Buenavista, Empire, and others in Central Arizona—have been opened, but want of capital and the condition of the country have retarded their development.

They will, before long, become permanent and valuable investments. Near the Mexican line, south of Tucson, the Cahuabi and Fresnal Mines are being successfully worked by Señor Padrez and other Mexicans. The patio process is adopted with good results. A large amount of silver is taken out monthly. There is a rich field here for California capital, which must inevitably find its way there before many months. All the mines above mentioned, except the San Antonio, are of the so-called hard ores—sulphurets of silver with copper combined.

If a sound judgment prevails at Washington (which may be rationally doubted), Arizona will be again restored to the command of General Wright, in whom the troops, as well as the people, recognize a true-hearted gentleman and intelligent soldier—qualities they have failed to discover in the individual now exercising command over the Territory.

It should be said that the reports of travelers by the Southern Overland Mail, that Arizona is a desert, should be taken *cum grano salis*. Almost any man unaccustomed to such a journey, worn out with fatigue and want of sleep, would imagine himself in Hell even if passing through Paradise. It would be about as fair to judge California from San Bernardino and San Diego counties, as to judge Arizona from the country west of Tucson. The letters from the California Column, published in several of the California newspapers, are mostly written to inflate some balloon reputation that will get a woful collapse some day, or to accomplish some private end (for example, the shameful attack upon General Canby, a most able, patriotic soldier and gentleman). They are certainly not intended to enlighten the public. There is no necessity to assert what is deliberately false about the country in order to compliment the march of the California Volunteers to New Mexico. The march was as good a one as could have been made under so inefficient a general. The men are entitled to great credit, as much for their patient endurance of uncalled-for, unmilitary, and arduous labors, as for their march.

Under a competent commander, the march could have been made in better time, and with far greater ease to the men. Under one who had any regard for the truth, the commander-in-chief and the public would have had the facts in connection with it, and not a romance which is worthy a place in a new edition of Munchausen.—S. M., 1863.

In the Santa Cruz Mountains, about eighty miles east of Tucson, is an immense deposit of silver-lead ores, argentiferous galena, of extraordinary richness. The sulphurets of lead and silver, mingled with the carbonates, give results previously unheard of by mineralogists.

The only portion of this district yet largely developed is the "Mowry Silver Mines," the property of the writer. The main shaft of these mines has been sunk to the depth of more than two hundred feet, with galleries and auxiliary shafts a thousand feet more. Prospecting shafts have been sunk at various places, and tunnels opened along the lead, on the property of the writer (twenty-six hundred feet in extent), in all of which paying ores have been "struck" at from ten to one hundred feet from the surface. About $200,000 has been expended in the purchase of these mines, erection of reduction works, houses for laborers, and every thing necessary for an extensive and permanent establishment, including steam-engine and mill. Under exceedingly adverse circumstances, in a country abandoned except by my own people, the mines were thoroughly opened, and a large quantity of ore reduced. It was my intention to have used only the reverberatory* process for the reduction of my ores, but, on account of the long continuance of the rainy season of 1861, I was forced to begin with the Ornos Castellaños (the common upright German or Mexican blast furnace), exceedingly simple in construction, and requiring but little skill or science to work. Several months' experience with these furnaces has convinced me of the great waste in silver resulting from their use, although the working proved remunerative beyond my expectation. I am satisfied that the loss in silver is, to pay for the whole expenses of the establishment, has been thrown aside as worthless. Ores which I have picked up on the creek, being assayed, have given the best results that I have obtained.

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* Later experience has proved conclusively that an improved blast-furnace is the best for reducing ores similar to those of the Mowry Mines. The reverberatory furnaces proved a failure. 1864.

But the actual owners of the mines are not the ones who ought to complain of the bad direction of the works, for, according to my idea, it is principally this bad management which has enabled them to purchase the whole mine at a comparatively low price. However, it will be easy to remedy the evil, either by beginning new works in a more suitable locality, or by modifying those already existing. The quality of the mine is such as to cover, in a short space of time, all the expenses which may be incurred in a rational manner.

The discovery of the Patagonia Mine dates only from the fall of 1858, but it would appear that its existence was suspected long ago, for the first parcels of ore gathered by the Mexicans were taken, at the time of the late discovery, from shafts which had been sunk many years ago, and which had been abandoned.

The Owners.—The first owners were Colonel J. W. Douglass, Captain R. S. Ewell, Lieutenants J. N. Moore, Mr. Randal, Mr. Lord, and Mr. Doss — all belonging to the United States Army excepting the last named individual and Colonel Douglass. These parties started some preliminary works—sunk shafts, extracted a certain quantity of ore, and built up several furnaces for smelting. But, being short of capital for a regular system of reduction on a large scale, two of the principal shareholders, Messrs. Lord and Doss, who had charge of the whole mine, sold their interest during the year 1858–9 to Mr. E. Brevoort, who thereupon became superintendent of the mine and principal owner.

The administration of Mr. Brevoort was not a happy one. The mine, which, as I have before stated, had been badly opened and badly worked, being turned into inexperienced hands, fared much worse. A certain quantity of ore was extracted, but, whether the proceeds were expended in useless operations, or for any other purposes, they were not sufficient to cover the costs incurred. These failures gave rise to disagreements between the owners, which could not be settled except by the sale of their whole interest, which Captain Ewell and his partners made to Mr. Brevoort this last-named gentleman turning the interest immediately over to Mr. H. T. Titus. But these negotiations did not put a stop to the difficulties, which were renewed on account of the payment of the purchase-money. Consequently, the sale of the whole was resolved upon, and the conveyance took place in the spring of 1860, in favor of Lieutenant Mowry, all the interested parties joining in the deed. The price of the mine, including the lands surrounding it, all the works and establishment standing at the time, fixed at $25,000, was paid in cash by the new owner, who some time after sold one fifth to a wealthy capitalist in the East. Hence four fifths of the Patagonia Mine are now held by Mr. Mowry, who has given his name to it. In the hands of the last-named gentleman, and under the direction of Mr. Charles Mowry, his brother, the works will be started with unusual activity. Already preparations have been made to carry on works of a considerable extent, so that next summer the mine will be in full operation.

The Management of the Mine.—The old furnaces having been badly constructed, and being out of use, they will be replaced by others containing all the later improvements, either for smelting or refining. A steam-engine of fifteen to twenty horse power will be put up for the trituration of the ores, for the working of the pumps, and to run a saw-mill. The waters of the creek will be gathered in large reservoirs, twelve feet in depth, constructed by means of thick embankments. Buildings will be put up for the accommodation of the superintendent of the mine and the reducing establishment, and for the engineer and other employés. A laboratory for assays will also be annexed to the works. The ores will be carried from the mine to the reducing establishment by a railroad, for the building of which Mr. R. Jones, Jr., has already taken the preliminary steps. Finally, for the accommodation of laborers, numbering from seventy to eighty, and of the inhabitants on the frontiers of Sonora, a large store will be opened for the sale of all sorts of provisions and merchandise. The expenses to be incurred this year to put in operation the different projects in view will exceed the sum of $60,000.

Such is the history of the mine, which I intended to relate to you with details, because within a short space of time it is called upon to rank among mines of the first class. Even now, in the neighborhood, by the abundance and richness of its ores, the facilities for extraction and reduction, and the conveniences of the locality, it is considered one of the best in Arizona. Its importance would be greatly increased if a project in which rich capitalists of the East are actively engaged is put in execution, which is to build a railroad between Guaymas and El Paso, in Texas, which would connect with the Pacific Railroad. This road, following the ridge of the Sierra de Santa Cruz, would run at a distance of only ten miles from Mr. Mowry's mine.

The mine which I have just described is not the only one to be found in that part of Arizona. The Santa Cruz Sierra, already renowned since the days of the Jesuits, who had opened in that locality the Compadre and French Mines, has lately given evidences of new richness. Besides the two which I have just named, the Boundary, Empire, Eagle, and St. Louis Mining Companies form a part of the Sierra.

OTHER MINES.

The Eagle Mine.—This mine is situated to the east of the Mowry Mine, and its vein, composed of argentiferous galena, exactly similar to the Mowry Mine, is, it is stated, its continuation.

The San Pedro Mine.—This mine is situated on the east side of the San Pedro River, about twenty-five miles from the Overland Mail road, and half a mile from the river.

Empire or Montezuma Mine.—I have mentioned above this mine as forming a part of the Santa Cruz Sierra. It is half way between the Mowry Mine and the town of Santa Cruz. The ores are composed of lead and silver. The first owners were Th. Gardner and Hopkins, who, it seems, sold their interest out to New York companies.

Santa Rita Mining Company.—The Sierra de la Santa Rita, as that of the Santa Cruz, incloses rich deposits of precious ores. The Cazada, Florida, and Salero Mines are united in one company, under the above title. The last one was known a long while ago, and was worked by the Jesuits. In that one, also, the argentiferous galena dominates. Shortly furnaces will be put up for smelting and reducing; they will be erected on the very mountains of Santa Rita, which are to the east of Tubac, at the distance of about ten miles. The superintendent of the mine is Mr. H. C. Grosvenor, and Mr. Pompelly is the engineer. The capital is $1,000,000. These mines were opened in 1856.

Mariposa Mining Company.—This company is working a copper mine, situated forty miles from Fort Breckenridge, at the junction of the San Pedro and Arrivaypa Rivers, and from three to four miles south of the Gila. The road known as the Leach Wagon Road, near by, renders the transportation of the ores and provisions quite easy. It is under the direction of Mr. A. B. Gray, ex-surveyor of the United States, attached to the commission of the Mexican frontiers, and engineer-in-chief of the Pacific Railroad. Mr. Hopkins is the engineer of the mines; the house of Soulter, of New York, is the principal owner.

Sonora Exploring and Mining Company.—This mine, situated at about thirty miles from Tubac, in the Cerro Colorado, is one of the principal mines, if not the richest in the Territory. The company is working the vein known as the Heintzelman Mine, rich in argentiferous coppers, and also several other veins on the Rancho Arivaco. The actual and imperfect system of reduction is by means of amalgamating barrels. Steam-engines of forty horse power, with a new process of amalgamation and refining, will soon be introduced. One of the principal shareholders, Mr. Charles D. Poston, is the director, and at the same time lessee of the mine for the term of ten years. This company was incorporated in Cincinnati, Ohio, with a capital of $2,000,000, divided into 20,000 shares. The sum already expended for the working of this mine is estimated at $230,000 either in ready cash or from the proceeds of the mine.

Cahuabi Mining Company.—The mine going by that name is near meridian 112 and 32 north latitude, in a region inhabited by the Papagos Indians. The argentiferous copper ores are treated according to the Mexican amalgamatory process known as the patio. I have seen specimens from this mine in the hands of Mr. Herman Ehrenberg, president of the company, of extreme richness. The mine was opened since 1859.

Arizona Copper Mining Company.—The bad administration and the difficulties of transportation have been the main causes why this mine, so rich, and which created so much excitement in California two or three years ago, has not given any good results. Its oxides and copper sulphurets are excessively rich, the extraction exceedingly easy, and the veins are numerous. Works at this present moment are suspended. This mine is situated 120 miles southeast from Fort Yuma. It was opened in 1855, and the company was incorporated in San Francisco.

Sopori Land and Mining Company.—The mine of Sopori, opened many years ago, had in Mexico an extensive reputation. The ores extracted were exceedingly rich in gold and silver, but the works were so badly carried on that the vein is lost, and not even any exterior traces of its position is left. A few arastras in bad condition are all that is left of the operations there. The mine forms a part of the Sopori Rancho, of an area of 21,000 acres, situated west of the Mal Pais Sierra, and south of the Canao Rancho, which are both considered as the best ranches of Arizona. The Sopori Company is incorporated in Providence, R. I., with a capital of $1,000,000. Governor Jackson is the president; Lieutenant Mowry, one of the principal shareholders, is, at the same time, one of the trustees.

Arizona Land and Mining Company.—This mine is situated north of the Rancho of Sopori. This company owns a large tract of land, of thirty-two leagues square, on which is situated the old silver mine of San Xavier, which was worked during the time of the Jesuits, and which appears exceedingly rich; other veins, equally rich, are to be found in the centre of the property, on the Sierra Tinaja. The company was incorporated in Providence, R. I., with a capital of $2,000,000. The Honorable S. G. Arnold is the president. The treasurer is Mr. Alfred Anthony, President of the Jackson Bank of Providence. Colonel Colt, Lieutenant Mowry, and other rich capitalists of the East, are the actual owners. Mr. Mowry is the holder of more than one half of the stock of the company. N. Richmond Jones, Jr., is the engineer-in-chief of this mine, as also of the Sopori Mine.

Colorado River Copper Mine.—About three years ago a Mr. Halstead, well known on the Colorado districts as an indefatigable prospector, discovered this mine on the shores of the river, at about forty miles from Fort Yuma. Having been examined and tested by experts from New York, they found it to be very extensive and very rich. Several tons sent to San Francisco last year were also admitted to be of uncommon richness. Consequently, laborers were engaged in Sonora, and preparations made to work the mine on an extensive scale. Difficulties, however, eventually arose which prevented the completion of the works. The mine is owned by Messrs. Wilcox, Johnson, and Hartshorn, owners of the steamer navigating the Colorado, by Mr. Hooper, principal merchant at Fort Yuma, and by Lieutenant Mowry.

Stevenson Mining Company.—This mine has been worked during several years by Mr. Stevenson, according to the Mexican process, and yielded him from $40,000 to $50,000. Afterward Mr. Stevenson sold his mine to Major Sprague, of the U. S. Army, who organized a company in New York, to which belong General Clarke, Doctor Mills, Mr. Russell, of the Pony Express and Missouri bonds notoriety, and several other persons. The mine appears to be very rich in silver and lead, but it has been wretchedly administered. The Stevenson Mine is situated on the Rio Grande, not far from Mesilla.

Harris Mine.—The mine belonging to this company was discovered several years ago. It was recently purchased by Lieutenant Mowry of Judge Hoppin, Mr. Cuniff, and Mr. Bull. This mine is also on the Rio Grande, six miles from the Stevenson Mine. The ore is composed of lead and silver.

St. Augustin Mining Company.—This mine is also situated on the Rio Grande, and the ores are like the above.

Several other silver veins, supposed to be very rich, have been discovered on the same river, but have not yet been worked. All these mines of the Rio Grande are to be found in the hills at the foot of the Organ Mountains. Besides silver, copper, and lead mines, coal mines are also to be found near the Rio Grande in the Organ Mountains, in Arizona Territory. There are also mines of plumbago in the Sierra Rita, and some of iron in different localities.

Traces of quicksilver have been found in the Heintzelman Mine, belonging to the Sonora Company, but they own particularly rich gold placers and veins of auriferous quartz. The new district of Pino Alto, whose placer diggings were discovered in May last, and which have yielded fine results in gold of a fine quality, is also rich in quartz veins.

One of the main ones is the one known by the name of Jackson Quartz Vein, owned by G. A. Oury, of Tucson, P. T. Herbert, and others. The vein was discovered in July, 1860, by J. J. Jackson, on Bear Creek, about thirty miles from the Overland Mail station, on the Mimbres River, and twenty-five miles from the Gila River. The vein is two feet in thickness, and promises to become excessively rich. Specimens taken from a depth of ten feet, and which were handed to me by Mr. Oury, have yielded more than $600 of pure gold to the ton. The persons who have visited the Pino Alto District speak of it as a section of country exceedingly healthy, well wooded, but quite barren in the summer months. A population of 800 to 1000 souls inhabit already the district and the town bearing its name. An express, connecting with that of Wells, Fargo & Co., runs between that town and Mesilla.

Another mine of auriferous quartz, which is stated to with proper treatment, more silver at less expense could be extracted. The best ore produces $350, the poorest $50 per ton. But, even reckoning mining and reduction at $20 per ton, facts and calculations show that the nett profits of one day's work of twenty tons will be $1280."

The Esperanza Mine has been sufficiently opened to demonstrate its great value, and the San Antonio is at work in a moderate way, giving full promise of proving a mine of the first class.

The mining interest of this section suffered a great loss in the death of Mr. J. B. Mills and Mr. Edwin Stevens, my two most valued assistants, killed by the Apaches.

The imbecile and cowardly policy of the commanding general of the department* has caused the diminution of our people, and a delay in again settling the valleys and opening new mines.

Great credit is due to Francis Hinton, of Arizona City, Henry Grinnell, Richard Halstead, and J. F. Yaeger, for their persistent exploration of the Gila and Colorado regions for the precious metals. They deserve to reap a rich reward.

The Act establishing the Territory of Arizona was approved by the President on the 24th of February, 1863. Section 1 describes the boundaries as follows: "All that portion of the present Territory of New Mexico, situated west of a line running due south from the point where the southwest corner of the Territory of Colorado joins the northern boundary of the Territory of New Mexico, to the southern boundary-line of said Territory of New

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* Brigadier General James H. Carleton, United States Volunteers. It is understood that Arizona is taken from his command and restored to the department of the Pacific. It has been a matter of great surprise that such a man should so long have been retained. Under the new commander it is hoped protection will be given, and this portion of Arizona keep pace with the Colorado region.

Mexico be, and the same is hereby erected into a temporary government by the name of the Territory of Arizona." This section also provides that Congress may at any time divide the Territory or change the boundaries. The second section makes provision for the appointment of Territorial officers, and extends to Arizona all the laws and enactments of the Territory of New Mexico not inconsistent with the provisions of this act, until they shall be repealed or amended by future legislation. Section 3 enacts "that there shall neither be slavery nor involuntary servitude in the said Territory otherwise than in the punishment of crimes, whereof the parties shall have been duly convicted; and all acts, either of Congress or of the Territory of New Mexico, establishing, regulating, or in any way recognizing the relation of master and slave in said Territory, are hereby repealed."

The Territory thus organized contains a little more than 120,000 square miles, commencing at a point where the 109th degree of longitude intersects the 37th degree of north latitude; thence south on said degree of longitude to the boundary-line between the United States and old Mexico; thence west on the said boundary-line to the boundary-line of southeastern California; thence north on said boundary-line to the 37th degree of north latitude; thence east on said parallel of north latitude to the place of beginning.

The white population of the Territory is roughly estimated at 20,000, but the number is rapidly increasing. The number of Indians is estimated at from 45,000 to 58,000. About half of these may be set down as friendly to the whites, the other half hostile.

The capital has been located, at least temporarily, at Fort Whipple.

The following are the officers of the Territory: *Governor*, John N. Goodwin, of Maine; *Secretary*, Richard C.

M'CORMICK, of New York; *Chief Justices*, WILLIAM T. HOWELL, of Michigan, and JOSEPH P. ALLYN, of Connecticut; *District Attorney*, ALMON GAGE, of New York; *Surveyor General*, LEVI BASHFORD, of Wisconsin; *Marshal*, MILTON B. DUFFIELD, of California; *Superintendent of Indian Affairs*, CHARLES D. POSTON, of Kentucky.

CHAPTER III.

THE MINES OF ARIZONA. REPORT OF F. BIERTU, METALLURGIST AND MINING ENGINEER, WRITTEN IN FEBRUARY, 1861.

The Mowry (formerly called the Patagonia) Silver Mines.—The Lodes and Ores.—Shafts and Tunnels.—Owners.—Management.—Eagle Mines.—Empire or Montezuma Mine.—Santa Rita Mining Company.—Mariposa Mining Company.—Sonora Exploring and Mining Company.—Cahuabi Mining Company.—Arizona Copper Mining Company.—Sopori Land and Mining Company.—Arizona Land and Mining Company.—Colorado River Copper Mines.—Stevenson Mining Company.—Harris Mine.—St. Augustin Mining Company.—Coal Mines.—Auriferous Quartz.

PATAGONIA, NOW MOWRY SILVER MINES.

My visit to the Patagonia Mine, now called Mowry Silver Mines, has lasted four days—the time necessary to give it a full examination in all its parts, and to make a careful assay of its ores. But why was it called the Patagonia Mine? Is it because it is situated in a desert inhabited only by Indians? Such were the questions I put to myself while traveling, and which I thought might be answered affirmatively. Great was my surprise, however, when, instead of finding, as I expected, barren mountains as at Washoe and Mono, I gazed on beautiful landscapes and a country covered with trees of different kinds, with fertile lands perfectly watered. True it is that the nearest neighbors, the Apaches, are far from being even equal to the Patagonians; but this, it seemed to me, could not be a reason for giving to such a beautiful spot, which in spring must be covered with flowers, so savage a name. Mr. Mowry was perfectly right to alter it.

This property, containing about five hundred acres of land, is situated ten miles from parallel 32° 20′ north latitude, which forms the limit between Arizona and Mexico, twenty miles from Fort Buchanan, fourteen from the town of Santa Cruz, in Sonora, and at an elevation of 6160 feet from the level of the sea; and a good road, 280 miles in length, and which, with a little repair, might be made excellent, places it in direct communication with Guaymas. By this route, freight from San Francisco to the mine does not go beyond five cents* per pound. The mine is situated on the last hills forming the eastern slope of the Sierra de Santa Cruz, and is bounded on the north-east by extensive plains covered by the mesquit and oak trees, which reach the line of Sonora, whose elevated mountains rise in the horizon. Between these plains and the mine is to be seen the Sierra Espuela, called also Wachuka Mountains.

The road leading to the mine from Fort Buchanan crosses a range of hills and mountains completely covered with oak, pine, sycamore, poplar, willow, and hazlenut. The land and the hills around the mine are covered with green oak, cedar, pine, and manzanitas. The whole country abounds with rabbits, quails, and wild turkeys. It is not a rare occurrence to meet droves of deer and antelopes numbering from twenty-five to thirty. The amateur of more intense excitement may also indulge in bear and Apache hunting.

About a mile from the mine, and near a little village called Commission, of some fifteen houses, intended for the peons and laborers of the mines, there is a creek, called Commission Creek, which is on the property itself, whose waters never dry up, and which are more than sufficient to run one or several mills. The buildings for residences, and those for stores and furnaces, are half way between the mine and the small village. Near by there is a spring of excellent water, which also never dries up. There are other springs lost in the hills, and which may easily be turned to some purposes.

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* Since reduced to less than four cents. Return freight from the mines is about two cents.

The Lodes and Ores.—The principal lode of the Patagonia Mine is composed principally of argentiferous galena, and runs south 85° E. Its thickness, which increases as it dips in the earth—now eighty-three feet in depth—is of about three feet.* Three small veins, excessively rich, cross each other in the main vein, all running in different directions. The size of these small veins varies from ten to nineteen inches. Other veins, whose outcroppings are visible on the top of the hill, and which run in a parallel direction at a great distance, will, according to all probabilities, be met with as the working of the mine proceeds. No prospects have as yet been undertaken to ascertain the nature of these veins. The galena of the principal vein contains a small quantity of copper and arsenic. It seemed to me that I detected appearances of zinc, but I had no means to ascertain the fact. An assay of the different ores has given results varying from $80 to $706 in silver per ton, and up to sixty-two per cent. of lead. Their reduction is of the utmost facility.

The Shafts and Tunnels.—Unfortunately,† all the operations perfected up to this day are, I might say, useless. The labor expended on shafts and tunnels has been conducted so carelessly—the different stratas of earth have been subjected to so little investigation, that while, on one hand, unnecessary expenses and labor have been incurred, on the other, a quantity of ore, sufficient probably

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* Much increased in width and richness at the great depth of over two hundred feet. The vein often spreads out into chambers of pure ore of great size, no gangue appearing between the side walls. Two peons have taken out ten tons of rich ore in one day's work. How?

† All this has since been corrected, and the mine worked under the able direction of a skillful mining engineer, Mr. George Habermann.

CHAPTER V.

SONORA FROM 1859 TO 1864.

Improvements since 1859.—The Southern Pacific Railroad.—The Overland Mail.—Guaymas.—Labor in Sonora.—Great Mining Haciendas.—The Mining Districts, Alamos, San Xavier, Las Brontes, Los Cedros.—Price of Labor.—The Jecker Contract for the Survey of Sonora.—Captain Stone's Scientific Commission.—Its Failure.—What it accomplished.—Extracts from Captain Stone's Letters.—What the Contract granted.—Present Condition of Sonora.

The prospects of Sonora have much improved since 1859. The constitutional power of the state has been boldly asserted, and maintained with courage and ability by Governor Pesqueira; the disturbances caused by the Yaqui Indians suppressed with a firm hand, revolutions nipped in the bud, and profound peace maintained for a long time past. A new port, La Libertad, on the Gulf of California, above Guaymas, has been opened, giving an immediate outlet to the valuable district of Altar and northeastern Sonora, and to Arizona. A liberal grant has been made by the Legislature of Sonora to an Eastern company, ably represented by General Angel Trias, for the right of way of a railroad from Guaymas to El Paso, to connect with the Southern Pacific Railroad.

This road, which would now have been in an advanced state had it not been for the civil war in the United States, must some day be built. The extension of the Opelousas Railroad from New Orleans, with the Memphis branch to San Antonio, Texas, and El Paso, then to Guaymas, will surely be built before any other road, when wise counsel shall take the place of the madness of the hour, and peace again shed her benignant smile over our unhappy country. European capital, with the valuable grants in aid of constructing the road, was secured to a sufficient amount to insure its rapid completion. The calculations on which this foreign aid was procured remain valid, and the development of Sonora and Arizona will increase their value. The great valley of the Mississippi will be placed in easy communication with the Pacific—a communication most devoutly to be wished. An immense item—never yet noted, I believe, in the trade of such a road—will be the freight of unnumbered tons of ores, not sufficiently rich to bear the present costly transportation. As a friend, who is more poetical than pious, remarked to me, "God never intended these ores, worth ten or twenty dollars a ton, to remain useless forever." I see no reason to change, in any degree, my opinion of the great superiority of the southern route along the 32d parallel for the Overland Mail and Pacific Railroad.

A temporary and partial success during the very mild winter of 1862 and '63, of the Northern Overland Mail, is no decided proof in its favor. "One swallow does not make summer." The advantage of climate—and vastly less cost—is indisputably with the southern route. I have therefore reproduced, in a subsequent chapter, an extract from the speech of Senator Davis, and my own brief remarks. I stand by them, and am willing to risk what little of reputation I may have on their accuracy.

A considerable amount of Eastern capital has been invested in city lots in Guaymas, and landed property near this magnificent port. The founderies of this city (San Francisco) are turning out engines, mills, and costly machinery for the several mines owned in part here. The steam-ship line established between San Francisco and Guaymas is not only a permanent institution, but the communication will soon be greatly facilitated by the addition of another steamer to the route. The last steamer went full to her guards with freight and passengers, and this is but the beginning. I am drawing no fancy picture. The reader can inquire for himself. I repeat, with a sincere conviction of their truth, the words of Ward in his able work on Mexico: "I am aware that many of the statements in this and the preceding books, respecting the mineral riches of the north of New Spain (Sonora, Arizona, Chihuahua, and Durango), will be thought exaggerated. *They are not so. They will be confirmed by every future report;* and in after years, the public, familiarized with *facts—which are questioned only because they are new—will wonder at its present incredulity; and regret the loss of advantages which may not always be within its reach.*"

I submit the descriptions contained in the following chapters of various mines in Sonora to the attentive consideration of the public. Detailed notices of La Cananea, Cieneguita, and others, are given, not to show that they are the only good mines, but as types of different classes of mines which are found in the state.

The question of labor is one which commends itself to the attention of the capitalist: cheap, and, under proper management, efficient and permanent. My own experience has taught me that the lower class of Mexicans, with the Opata and Yaqui Indians, are docile, faithful, good servants, capable of strong attachment when firmly and kindly treated. They have been "peons" (servants) for generations. They will always remain so, as it is their natural condition. The master, if he consults his own interest, and is a proper person to carry on extensive works, is (in their own language) their "*amo y patron*"—"guide, philosopher, and friend." They depend upon him, and serve him willingly and well.

I can fairly assert that, although having large pecuniary interests in both Arizona and Sonora, I have not exaggerated the advantages or palliated the drawbacks to the investment of capital and personal enterprise in these states. They are part of the Pacific Empire, in which I claim a citizenship of more than ten years. In these pages I have had but one desire: to state things as they are, and, in the spirit of an honorable ambition, to connect my name, in a permanent and useful way, with her magnificent progress to a place among the powers of the world.

To appreciate what wonderful internal resources Sonora has, one should visit the Hacienda de la Alameta, fifteen miles from Hermosillo, owned by Don Manuel Yñigo, or of La Labor, owned by the Astizarans. A few weeks since, with a member of the Yñigo family, I went over the Alameta. There are miles of wheat, corn, and sugar-cane. An immense field is being cleared for cotton. Some specimens of the cotton, of good, fine staple, growing wild, were exhibited. A flour-mill of the best description, with abundance of water power; sugar mill and works; a manufactory of blankets, the wool for which, and the dye-stuffs, are grown on the place; a wagon manufactory is also carried on for the sole use of the hacienda; tobacco also is produced, of excellent quality; oranges, lemons, pomegranates, and other tropical fruits, of delicious flavor, are grown in abundance. These places are simply principalities, where a man has all the products of the earth under tribute and at hand. The large cotton mill near La Labor, at San Miguel, has been offered to San Francisco capitalists on liberal terms. The cotton can be raised at its very door. Indigo, Brasil wood, cochineal, and other dye-stuffs, grow spontaneously in the Yaqui and Mayo valleys; also coffee of the best quality.

The following are some of the principal mining districts of the State of Sonora:

be quite rich, was lately discovered ninety miles from Fort Yuma, on the Colorado. The owners are Messrs. Halstead and Yaeger, residents of Fort Yuma.

On the Mimbres River, ninety miles from the Rio Grande, are to be found the renowned mines of Santa Rita del Cobre, worked by Mexicans many years ago, and well known for their richness. These mines and the Hanover Copper Mines, situated in the same locality, were profitably worked a long time ago. The copper, worked into bars, is sent to New York by way of Port Lavaca, in Texas. Two new towns, Mowry City and Burchville, are also built on the Mimbres River.

Auriferous deposits of some importance are also to be found on the shores of the Gila, not only at its source, but all along its course. When we passed by Gila City three weeks ago, nothing was spoken of but the discovery of rich deposits of gold on the river. It was stated that Mexicans were gathering from ten to fifteen dollars per day. Besides, at the junction of the Gila and the Colorado, about 300 Mexicans are constantly at work, and obtain excellent pay. The greater part of this gold is forwarded by Mr. Hooper, of Fort Yuma.

The particulars I have just given you, although already quite lengthy, are far from containing all that might be stated in regard to the mineral wealth of that Territory; but I must stop here, as I only intend to give you statements entirely correct.

[To the foregoing I add, that the reports of the eminent metallurgist, Guido Küstel, who has lately visited Southern Arizona on a scientific tour, show conclusively that it is one of the richest silver regions in the known world. His examination of different mines was thorough, and his opinions are founded upon facts. No one is more capable of giving sound opinions upon mines and mining.—S. M., 1864.]

CHAPTER IV.

THE COLORADO RIVER MINES IN 1864.

Mining on the Colorado.—The River and its Navigation.—The different Mining Districts on the Colorado.—Freight and Passage.—Quality of the Ores.—Mode of Working.—Furnaces and Fuel.

THE following extracts from the *Alta California*, published during the month of April, 1864, present a summary of the condition and prospects of the mining region of the Colorado. It says:

In consequence of movements in San Francisco to secure the full and cheap navigation of the Colorado River, mining operations throughout that section are being pushed with energy. Many tunnels and inclines are being run, and shafts sunk. Assays of different ores indicate values per ton of $85, $170, $70, and $30. One mill is already at work, crushing chiefly gold ores, and arrangements are in progress for the erection of a first-class mill, with the necessary machinery for working silver ores, near the mouth of the river. Large piles of rich ore have been taken out of the various tunnels and shafts, of which there are nine mentioned in the report before us. Extensive discoveries of salt, free from impurities, have been made. It is found in veins similar to the mineral veins, underlying at an angle of 45 degrees, and varying in width from eighteen inches to three feet. Discoveries of coal are also reported. Several mining districts are organized—the San Francisco, Williams's Fork, La Paz, etc. The mines on the extreme lower river are chiefly valuable for copper; farther up, silver and gold predominate. The San Francisco *Mining Press*, from the columns of which we condense the above, closes its article thus:

"The river, which is now attracting a large share of attention, is destined to become one of the most important rivers on the Pacific coast. Its topography and general characteristics are certainly most remarkable. Taking its rise, as we have already said, in the Pike's Peak mining region, it constitutes simply a mountain stream until it reaches the vicinity of Black Cañon, about eighty miles above El Dorado Cañon. From this point to its mouth, a distance of a little over 600 miles, this river is navigable for river steamers of a small draught; and for 500 miles of this distance the entire country is rich in minerals — gold, silver, and copper — down to its very banks, and to an unknown and unexplored distance into the interior. All kinds of miners' supplies will soon be delivered along this river, *via* the Gulf of California, for a price not greater than that now charged for the delivery of goods at Nevada City or Placerville. Freight has already been delivered at La Paz for three cents per pound."

The *Alta California* then furnishes the following detailed description of the mining districts upon the Colorado, and the modes of working in use there:

The mining districts on the banks of the Lower Colorado continue to preserve their attractions for a considerable number of miners who have been in them for several years. They have as yet produced little bullion, but they promise to increase in importance, and to furnish no small portion of the gold, silver, and copper crop of this coast.

The Colorado River empties into the Gulf of California in latitude 31° 40,′ and for ninety-five miles above that point the river runs through a low plain. At Fort Yuma, as we ascend the river, the mineral region commences. The various districts are as follows:

I. *Yuma or Pichaco District*, on the western side of the river, near Fort Yuma. There may be 100 miners, mostly Mexicans, engaged in dry washing for placer gold. There are some rich lodes of silver and copper, and a few veins of auriferous quartz.

II. *Castle Dome District*, on the eastern side of the Colorado, between that stream and the Gila. There may be 100 miners here engaged in silver mining. The ores are rich, but they are from eighteen to thirty-five miles from the river. Some furnaces are now building for smelting the ores. The chief town is Castle Dome City, which has four or five houses, and is thirty miles above Fort Yuma, by the river.

III. *Eureka District*, on the eastern side of the Colorado, twenty-five miles, by land, above Fort Yuma, is twenty-eight miles long on the river bank, and twelve miles wide. There are 100 miners there, of whom a majority are Mexicans. The mines are silver, lead, and copper, and very near the river. The country or bed rock is granite and slate; the silver veins are in pink and white quartz; the lodes are from two to ten feet thick. The chief town is Williamsport, which contains one stone house and many tents, and is forty-five miles, by the river, above Fort Yuma.

IV. *Weaver District*, on the eastern side of the river, ninety miles above Fort Yuma. The mines are copper, silver, and gold. The principal town is Olive City, which has twenty houses, and is 150 miles, by the river, above Fort Yuma. The ledges which are now being worked are situated at from six to fifteen miles of the steam-boat landing at Olive City. Among these are the Great Central, Colorado, Blue Ledge, American Pioneer, Weaver, Henry Barnard, and others.

V. *La Paz District*, on the eastern bank of the Colorado, 100 miles above Fort Yuma. It contains 500 miners, who are engaged in silver, copper, and lead veins, and in gold placers. There are some Mexican smelting furnaces at La Paz, the chief town of the district, and ore is regularly shipped to San Francisco. La Paz City has 150 houses, and is 155 miles, by the river, from Fort Yuma.

VI. *Chemahueva District*, on the western side of the river, opposite La Paz.

VII. *El Dorado Cañon District*, on the western side of the river, 250 miles, by land, above Fort Yuma, contains a population of about 300 miners, and has some rich silver and copper lodes.

There are several other districts along the river, but some of them are almost unknown save to a few prospectors, who are wandering about in them. The Walker Placer Mines, on the foot-hills of the San Francisco Mountains, are 150 miles east of La Paz. The diggings are good there, but the Indians are troublesome. Persons bound for those mines, from California, usually go through La Paz.

Freight for the Colorado mines, from San Francisco, goes by sailing vessels, in a voyage of three or four weeks ordinarily, to the mouth of the Colorado, at a cost of $20 per ton. There are four steam-boats on the Colorado River; and they charge $25 per ton to Williamsport, and $75 to La Paz, from the mouth. The stream is about 350 yards wide, and the channel averages five feet deep, but it has a swift current, and a bed of quicksand, which is constantly shifting. In the dry season, the steamers have much difficulty above Williamsport in ascending the rapid stream, in which no experience can enable a pilot to know where the channel will be to-morrow, however familiar he may be with it to-day. The steamers take six days in low water in going from the mouth up to La Paz. It is thought the price of freight will fall, in consequence of competition and opposition. Flour at La Paz is worth $9 per 100 pounds.

There is not a good silver mill in the whole Colorado county, and not one mine is opened so that a large amount of ore could be supplied at a short time, but the vein stone is known to be good. The Apache Chief and the Providencia Mines, in the La Paz District, and the Carmel, in the Eureka District, among others, have shipped ores to this city. The Arizona Company, in the Eureka District, has sent down sacks to hold 500 tons of their ore, rich argentiferous galena, which is to be shipped. The Margarita, River, Norma, Enterprise, Rockford, Gray Eagle, Cache Knob, Cocomongo, and Rosario, of the same district, have smelted rich ores in Mexican furnaces. The ores of the two last-named mines yielded seventy ounces of silver to the ton.

The silver ores of the Colorado Valley, or nearly all of them, contain large quantities of either copper or lead, both of them unfitted for amalgamation. No attempt has yet been made to reduce the cupriferous ores; those are either neglected or shipped to Europe. The chief attention of the miners is turned, therefore, to the argentiferous galena. That found in the Cache Knob and Arizona Mines contains sixty per cent. of lead and sixty to 100 ounces of silver to the ton. This and similar ores are reduced by smelting, which is managed by Mexicans in the rudest manner.

The rock is crushed, not with stamps or arastras, but between two flat stones, the upper one being worked by hand. Some of the workmen stop when there are no pieces of ore larger than a hazel-nut, and others will not have a piece larger than a pea; very few insist on reducing the ore to a fine flour, as is done in good silver mills. The finer the ore, the quicker the smelting, and the more thorough the separation of the metal.

The furnace is built of stone and adobes, ten feet long, four feet wide, and eight feet high. The inside is lined with clay mixed with bone-dust, this being the best material to be had there for resisting the action of the fire. The bellows is worked by hand. It is made of canvas, and has two horizontal chambers, each about as wide and half as long as a barrel. These two chambers or bellows are put on a level with a man's breast; and the workman pulls out the board end of one bellows, while he pushes in the board end of the other. Each chamber has its own pipe, but the two unite, and thus, by the alternate movements of the arms, a constant stream of air is kept up.

The fuel used in smelting is charcoal, made of mesquit, which gives a fire of intense heat. Twenty-five or thirty pounds of ore are put in at intervals of ten or fifteen minutes, and at the end of an hour and a half or two hours they tap the furnace, let out the metal, clean out the slag, and commence anew. The metal which has run out, called a *plancha*, weighs from 125 to 150 pounds, and contains only about one half of one per cent. of silver to ninety-five per cent. of lead, with a few other base substances.

After all the ore on hand is smelted, refining commences. Two or three planchas are put into the furnace and melted, and kept at a high heat. The lead turns to litharge, which is raked off, and, as the molten metal decreases in quantity, more planchas are added, until the lead has all been converted into litharge, and the silver remains pure enough to be sent to the market. The litharge is worth seven cents per pound, and brings nearly as much as the silver.

There are numerous furnaces of this kind in the Colorado region, nearly all of them worked by Mexicans. It is plain that, if ore will pay for such working, there must be silver in it. The Mexicans offer to pulverize, smelt, and refine for $40 per ton. Some Frenchmen at Olive City have a better class furnace, and rumor says they are doing well. The Americans are anxious to get stamps and good furnaces. The Recorder of the Eureka District, Mr. Spann, is now in this city for the purpose of getting fire-brick for furnaces, for the clay and bone-dust will not last long in a heat hot enough to smelt silver.

The Colorado valley may not be equal to Paradise for a home, but it is rich in silver, and silver mines are not generally found in the most fertile valleys and the most genial climes. There are probably no silver mines in the world so near the level of the sea as those at Eureka.

Alamos is situated some 240 miles southeast from the port of Guaymas. This district is particularly rich in silver leads. The principal or most noted mines are Nuestra Señora de Valvanero, in the small Reál of Promontorio, five miles north, which has been owned and worked by the family of Almadas for the last century. The present owner, Don José M. Almada, is now working a deposit of black ores, which he found at a depth of 600 feet, with surprising results. His reduction works are situated at Los Mercedes, about two miles to the east of Alamos. The mines of Dios Padre, Santo Domingo, Libertad Cotera, and many others, are in the immediate vicinity of Promontorio. The Reál of Minas Nuevas, about two miles east of Alamos, contains many rich mines; among them San José Uvalama, Discobredora, Rosario de Talpa, Sambono, and others. The Rosario de Talpa and the Sambono are now successfully worked by Juan A. Robinson, of Guaymas, and T. Robinson Bours, of Stockton. The district of Alamos contributes very largely to the export of silver from Sonora.

San Xavier is distant about 140 miles from the port of Guaymas in a northeast direction, and about the same distance southeast from the city of Hermosillo, approachable from both points by an excellent wagon road. This is one of the oldest and richest mineral districts of Sonora. There are many mines situated within a radius of about three miles, viz., Las Bronces, Las Cruzecitas, Las Afuesseños, Las Cumbres, La Division, La Naguila, Las Animos, La Sierra, and many others. The most important are Las Bronces, worked by Don Mateas Alsua, who has erected extensive reduction works, having stamps, barrel furnaces, etc.; his ores are treated by the Freyburg process, yielding about $1000 per day. Mr. Alsua is also working the Naquila.

Las Bronces is situated about 200 yards lower down